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* * * * * Welcome to STN International * * * * *

NEWS	1		Web Page for STN Seminar Schedule - N. America
NEWS	2	DEC 01	ChemPort single article sales feature unavailable
NEWS	3	FEB 02	Simultaneous left and right truncation (SLART) added for CERAB, COMPUAB, ELCOM, and SOLIDSTATE
NEWS	4	FEB 02	GENBANK enhanced with SET PLURALS and SET SPELLING
NEWS	5	FEB 06	Patent sequence location (PSL) data added to USGENE
NEWS	6	FEB 10	COMPENDEX reloaded and enhanced
NEWS	7	FEB 11	WTEXTILES reloaded and enhanced
NEWS	8	FEB 19	New patent-examiner citations in 300,000 CA/CAPLUS patent records provide insights into related prior art
NEWS	9	FEB 19	Increase the precision of your patent queries -- use terms from the IPC Thesaurus, Version 2009.01
NEWS	10	FEB 23	Several formats for image display and print options discontinued in USPATFULL and USPAT2
NEWS	11	FEB 23	MEDLINE now offers more precise author group fields and 2009 MeSH terms
NEWS	12	FEB 23	TOXCENTER updates mirror those of MEDLINE - more precise author group fields and 2009 MeSH terms
NEWS	13	FEB 23	Three million new patent records blast AEROSPACE into STN patent clusters
NEWS	14	FEB 25	USGENE enhanced with patent family and legal status display data from INPADOCDB
NEWS	15	MAR 06	INPADOCDB and INPAFAMDB enhanced with new display formats
NEWS	16	MAR 11	EPFULL backfile enhanced with additional full-text applications and grants
NEWS	17	MAR 11	ESBIOBASE reloaded and enhanced
NEWS	18	MAR 20	CAS databases on STN enhanced with new super role for nanomaterial substances
NEWS	19	MAR 23	CA/CAPLUS enhanced with more than 250,000 patent equivalents from China
NEWS	20	MAR 30	IMSPATENTS reloaded and enhanced
NEWS	21	APR 03	CAS coverage of exemplified prophetic substances enhanced
NEWS	22	APR 07	STN is raising the limits on saved answers
NEWS	23	APR 24	CA/CAPLUS now has more comprehensive patent assignee information
NEWS	24	APR 26	USPATFULL and USPAT2 enhanced with patent assignment/reassignment information
NEWS	25	APR 28	CAS patent authority coverage expanded
NEWS	26	APR 28	ENCOMPLIT/ENCOMPLIT2 search fields enhanced
NEWS	27	APR 28	Limits doubled for structure searching in CAS REGISTRY
NEWS	28	MAY 08	STN Express, Version 8.4, now available
NEWS	29	MAY 11	STN on the Web enhanced

NEWS 30 MAY 11 BEILSTEIN substance information now available on
STN Easy
NEWS 31 MAY 14 DGENE, PCTGEN and USGENE enhanced with increased
limits for exact sequence match searches and
introduction of free HIT display format
NEWS 32 MAY 15 INPADOCDB and INPAFAMDB enhanced with Chinese legal
status data

NEWS EXPRESS JUNE 27 08 CURRENT WINDOWS VERSION IS V8.3,
AND CURRENT DISCOVER FILE IS DATED 06 APRIL 2009.

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* * * * * STN Columbus * * * * *

FILE 'HOME' ENTERED AT 14:10:29 ON 21 MAY 2009

=> file caplus

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.66	0.66

FILE 'CAPLUS' ENTERED AT 14:12:20 ON 21 MAY 2009

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FILE COVERS 1907 - 21 May 2009 VOL 150 ISS 21

FILE LAST UPDATED: 20 May 2009 (20090520/ED)

REVISED CLASS FIELDS (/NCL) LAST RELOADED: Feb 2009

USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Feb 2009

CAplus now includes complete International Patent Classification (IPC)
reclassification data for the third quarter of 2008.

CAS Information Use Policies apply and are available at:

<http://www.cas.org/legal/infopolicy.html>

This file contains CAS Registry Numbers for easy and accurate

```
=> e us20070039665/pn
E1      1      US20070039661/PN
E2      1      US20070039662/PN
E3      1 -->  US20070039665/PN
E4      1      US20070039666/PN
E5      1      US20070039667/PN
E6      1      US20070039668/PN
E7      1      US20070039669/PN
E8      1      US20070039670/PN
E9      1      US20070039671/PN
E10     1      US20070039672/PN
E11     1      US20070039674/PN
E12     1      US20070039675/PN
```

```
=> s e3;d all
L1      1 US20070039665/PN
```

```
L1  ANSWER 1 OF 1  CAPLUS  COPYRIGHT 2009 ACS on STN
AN  2004:847649  CAPLUS
DN  141:353637
ED  Entered STN:  15 Oct 2004
TI  Pretreatment of Ag-alloy surface with organosulfur compounds for
    tarnishing prevention
IN  Johns, Peter Gammon; Harrison, Clare Elizabeth
PA  Middlesex Silver Co. Limited, UK
SO  PCT Int. Appl., 43 pp.
    CODEN: PIXXD2
DT  Patent
LA  English
IC  ICM  C23F011-16
CC  56-6 (Nonferrous Metals and Alloys)
FAN.CNT 1
```

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004087996	A1	20041014	WO 2004-GB1373	20040330
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	AU 2004225693	A1	20041014	AU 2004-225693	20040330
	CA 2520807	A1	20041014	CA 2004-2520807	20040330
	EP 1611267	A1	20060104	EP 2004-724313	20040330
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK				
	CN 1780937	A	20060531	CN 2004-80011375	20040330
	JP 2006523266	T	20061012	JP 2006-506057	20040330
	IN 2005DN04346	A	20070831	IN 2005-DN4346	20050926
	MX 2005010452	A	20060510	MX 2005-10452	20050928
	US 20070039665	A1	20070222	US 2005-551476	20050929 <--
PRAI	GB 2003-7290	A	20030331		
	WO 2004-GB1373	W	20040330		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2004087996	ICM	C23F011-16
	IPCI	C23F0011-16 [ICM,7]; C23F0011-10 [ICM,7,C*]
	IPCR	C23F0011-10 [I,C*]; C23F0011-16 [I,A]
	ECLA	C23F011/16; C23F011/16B
AU 2004225693	IPCI	C23F0011-16 [ICM,7]; C23F0011-10 [ICM,7,C*]
	IPCR	C23F0011-10 [I,C*]; C23F0011-16 [I,A]
	ECLA	C23F011/16; C23F011/16B
CA 2520807	IPCI	C23F0011-16 [ICM,7]; C23F0011-10 [ICM,7,C*]
	IPCR	C23F0011-10 [I,C*]; C23F0011-16 [I,A]
	ECLA	C23F011/16; C23F011/16B
EP 1611267	IPCI	C23F0011-16 [ICM,7]; C23F0011-10 [ICM,7,C*]
	IPCR	C23F0011-10 [I,C*]; C23F0011-16 [I,A]
	ECLA	C23F011/16; C23F011/16B
CN 1780937	IPCI	C23F0011-16 [I,A]; C23F0011-10 [I,C*]
	ECLA	C23F011/16; C23F011/16B
JP 2006523266	IPCI	C23F0011-00 [I,A]; C22C0005-06 [I,A]; C22C0005-08 [I,A]
	IPCR	C23F0011-00 [I,C]; C23F0011-00 [I,A]; C22C0005-06 [I,C]; C22C0005-06 [I,A]; C22C0005-08 [I,A]; C23F0011-10 [I,C*]; C23F0011-16 [I,A]
	FTERM	4K062/AA01; 4K062/BB21; 4K062/BC22; 4K062/FA16
IN 2005DN04346	IPCI	C23F0011-16 [ICM,7]; C23F0011-10 [ICM,7,C*]
MX 2005010452	IPCI	C23F0011-16 [ICM,7]; C23F0011-10 [ICM,7,C*]
	ECLA	C23F011/16; C23F011/16B
US 20070039665	IPCI	C23G0001-00 [I,A]; C23C0022-58 [I,A]; C23C0022-05 [I,C*]
	NCL	148/271.000; 134/002.000
AB	The Ag alloys containing minor Ge (especially Ag-Cu-Ge alloys) to decrease the fire	
	stain discoloration are pretreated on the surface with an alkanethiol, alkyl thioglycollate, dialkyl sulfide, or dialkyl disulfide to prevent tarnishing. The treatment with organosulfur compds. is suitable for manufactured Ag-alloy articles to prevent tarnished appearance during transit and the subsequent extended display without special packaging. The Ag-alloy surface is optionally treated with aqueous solution containing an alkanethiol, alkyl thioglycollate, dialkyl sulfide, or dialkyl disulfide, as well as a mixture of anionic surfactant and amphoteric or nonionic surfactant to solubilize the treatment agent. The typical ternary alloy contains Ag 80-96, Cu 1-19.9, and Ge 0.1-5%.	
ST	silver copper germanium alloy tarnishing prevention organosulfur	
IT	Surfactants	
	(anionic, in tarnishing prevention; Ag-alloy surface treated with organosulfur compds. for tarnishing prevention)	
IT	Surfactants	
	(in tarnishing prevention; Ag-alloy surface treated with organosulfur compds. for tarnishing prevention)	
IT	Surfactants	
	(nonionic, in tarnishing prevention; Ag-alloy surface treated with organosulfur compds. for tarnishing prevention)	
IT	Tarnishing	
	(prevention of; Ag-alloy surface treated with organosulfur compds. for tarnishing prevention)	
IT	Thioethers	
	Thiols, uses	
	RL: TEM (Technical or engineered material use); USES (Uses)	
	(tarnishing prevention by; Ag-alloy surface treated with organosulfur compds. for tarnishing prevention)	
IT	7440-56-4, Germanium, uses	
	RL: MOA (Modifier or additive use); USES (Uses)	
	(Ag alloys containing, tarnishing prevention on; Ag-alloy surface treated with organosulfur compds. for tarnishing prevention)	

IT 106-94-5, n-Propyl bromide
 RL: TEM (Technical or engineered material use); USES (Uses)
 (solvent, in tarnishing prevention; Ag-alloy surface treated with
 organosulfur compds. for tarnishing prevention)

IT 2885-00-9, Octadecyl mercaptan 2917-26-2, Cetyl mercaptan
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical
 process); PROC (Process)
 (tarnishing prevention by; Ag-alloy surface treated with organosulfur
 compds. for tarnishing prevention)

IT 39282-03-6, Sterling silver 103221-24-5 476614-10-5 476614-12-7
 476614-13-8
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical
 process); PROC (Process)
 (tarnishing prevention on; Ag-alloy surface treated with organosulfur
 compds. for tarnishing prevention)

IT 9080-17-5, Ammonium polysulfide
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical
 process); PROC (Process)
 (test solution with, for tarnishing; Ag-alloy surface treated with
 organosulfur compds. for tarnishing prevention)

RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Carlton, C; US 3503883 A 1970
- (2) Carpenter, J; US 3398003 A 1968 CAPLUS
- (3) Gamon, J; EP 0729398 A 1996 CAPLUS
- (4) Gamon, J; WO 02095082 A 2002 CAPLUS
- (5) Goddard & Sons Ltd J; GB 1070384 A 1967 CAPLUS
- (6) Goddard & Sons Ltd J; GB 1130540 A 1968
- (7) Han, S; JOURNAL OF THE AMERICAN CHEMICAL SOCIETY 2001, V123, P2422 CAPLUS
- (8) Metaleurop Rech; GB 2255348 A 1992 CAPLUS
- (9) Nippon Germanium Lab Co Ltd; EP 1130124 A 2001 CAPLUS

=> file reg;s 106-94-5/rn;d;s 2885-00-9/rn;d;s 2917-26-2/rn;d

COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	9.12	9.78
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
	ENTRY	SESSION
CA SUBSCRIBER PRICE	-0.82	-0.82

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STRUCTURE FILE UPDATES: 20 MAY 2009 HIGHEST RN 1147939-89-6
 DICTIONARY FILE UPDATES: 20 MAY 2009 HIGHEST RN 1147939-89-6

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REGISTRY includes numerically searchable data for experimental and
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experimental property data in the original document. For information on property searching in REGISTRY, refer to:

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L2 1 106-94-5/RN

L2 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2009 ACS on STN
RN 106-94-5 REGISTRY
ED Entered STN: 16 Nov 1984
CN Propane, 1-bromo- (CA INDEX NAME)
OTHER NAMES:
CN 1-Bromopropane
CN 1-Propyl bromide
CN Ascusol MC
CN Drysol
CN Leksol
CN n-Propyl bromide
CN Propyl bromide
MF C3 H7 Br
CI COM
LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOSIS, BIOTECHNO, CA, CAPLUS, CASREACT, CBNB, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DETHERM*, EMBASE, GMELIN*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, PIRA, PROMT, PS, RTECS*, SPECINFO, SYNTHLINE, TOXCENTER, USPAT2, USPATFULL, USPATOLD
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(*Enter CHEMLIST File for up-to-date regulatory information)

Br-CH₂-CH₂-CH₃

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

4951 REFERENCES IN FILE CA (1907 TO DATE)
50 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
4963 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 1 2885-00-9/RN

L3 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2009 ACS on STN
RN 2885-00-9 REGISTRY
ED Entered STN: 16 Nov 1984
CN 1-Octadecanethiol (CA INDEX NAME)
OTHER NAMES:
CN 1-Mercaptooctadecane
CN 1-Octadecyl mercaptan
CN n-Octadecanethiol
CN n-Octadecyl mercaptan
CN NSC 5545
CN Octadecanethiol
CN Octadecyl mercaptan

CN Octadecylthiol
CN Stearyl mercaptan
MF C18 H38 S
CI COM
LC STN Files: AGRICOLA, ANABSTR, BEILSTEIN*, BIOSIS, CA, CAPLUS, CASREACT,
CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, DETHERM*, IFICDB, IFIPAT,
IFIUDB, MEDLINE, MSDS-OHS, PIRA, PROMT, SPECINFO, TOXCENTER, USPAT2,
USPATFULL, USPATOLD
(*File contains numerically searchable property data)
Other Sources: EINECS**, NDSL**, TSCA**
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HS-(CH₂)₁₇-Me

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2003 REFERENCES IN FILE CA (1907 TO DATE)
221 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
2011 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L4 1 2917-26-2/RN

L4 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2009 ACS on STN
RN 2917-26-2 REGISTRY
ED Entered STN: 16 Nov 1984
CN 1-Hexadecanethiol (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Hexadecanethiol (6CI)
OTHER NAMES:
CN 1-Mercaptohexadecane
CN Cetyl mercaptan
CN Hexadecyl mercaptan
CN Hexadecylthiol
CN n-Hexadecanethiol
CN n-Hexadecyl mercaptan
CN n-Hexadecylthiol
CN NSC 229611
CN NSC 57866
MF C16 H34 S
CI COM
LC STN Files: AGRICOLA, ANABSTR, BEILSTEIN*, BIOSIS, CA, CAPLUS, CASREACT,
CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, ENCOMPLIT, ENCOMPLIT2,
ENCOMPPAT, ENCOMPPAT2, IFICDB, IFIPAT, IFIUDB, MEDLINE, PIRA, SPECINFO,
SYNTHLINE, TOXCENTER, USPAT2, USPATFULL, USPATOLD
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Other Sources: EINECS**, NDSL**, TSCA**
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HS-(CH₂)₁₅-Me

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1614 REFERENCES IN FILE CA (1907 TO DATE)
 179 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 1621 REFERENCES IN FILE CAPLUS (1907 TO DATE)

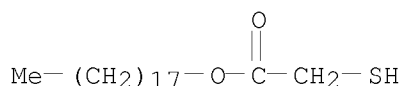
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=> e stearyl thioglycollate/cn
E1      1      STEARYL THIOCTATE/CN
E2      1      STEARYL THIOGLYCOLATE/CN
E3      0 --> STEARYL THIOGLYCOLLATE/CN
E4      1      STEARYL TITANATE/CN
E5      1      STEARYL TOSYLATE/CN
E6      1      STEARYL TRIHYDROXY SILANE/CN
E7      1      STEARYL TRIHYDROXYETHYL PROPYLENEDIAMINE DIHYDROFLUORIDE/CN
E8      1      STEARYL UNDECENOATE/CN
E9      1      STEARYL UROCANATE/CN
E10     1      STEARYL URSOLATE/CN
E11     1      STEARYL VINYL ETHER/CN
E12     1      STEARYL VINYL ETHER HOMOPOLYMER/CN
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=> s e3;d
L5      0 "STEARYL THIOGLYCOLLATE"/CN
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L5 HAS NO ANSWERS
L5      0 SEA FILE=REGISTRY "STEARYL THIOGLYCOLLATE"/CN
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=> s e2;d
L6      1 "STEARYL THIOGLYCOLATE"/CN
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```
L6      ANSWER 1 OF 1  REGISTRY  COPYRIGHT 2009 ACS on STN
RN      10220-46-9  REGISTRY
ED      Entered STN:  16 Nov 1984
CN      Acetic acid, 2-mercapto-, octadecyl ester  (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN      Acetic acid, mercapto-, octadecyl ester (7CI, 8CI, 9CI)
OTHER NAMES:
CN      NSC 65478
CN      Octadecyl mercaptoacetate
CN      Octadecyl thioglycolate
CN      Stearyl thioglycolate
CN      Thioglycolate octadecyl ester
CN      Thioglycolic acid octadecyl ester
MF      C20 H40 O2 S
CI      COM
LC      STN Files:  BIOSIS, CA, CAPLUS, CHEMCATS, CHEMLIST, CSCHEM, GMELIN*,
                IFICDB, IFIPAT, IFIUDB, MEDLINE, TOXCENTER, USPAT2, USPATFULL, USPATOLD
                (*File contains numerically searchable property data)
Other Sources:  EINECS**, NDSL**, TSCA**
                (**Enter CHEMLIST File for up-to-date regulatory information)
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PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

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4 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
50 REFERENCES IN FILE CAPLUS (1907 TO DATE)

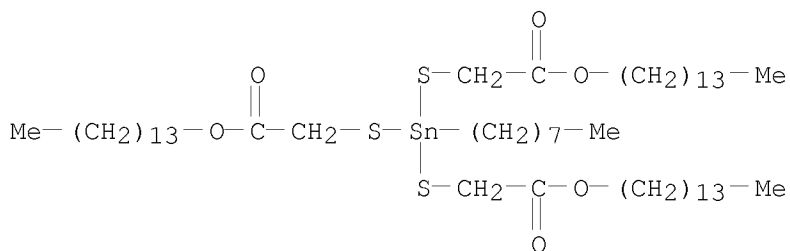
=> s thioglycollate
L7 15 THIOGLYCOLLATE

=> d 1-15

L7 ANSWER 1 OF 15 REGISTRY COPYRIGHT 2009 ACS on STN
RN 74162-83-7 REGISTRY
ED Entered STN: 16 Nov 1984
CN 8-Oxa-3,5-dithia-4-stannadocosanoic acid,
4-octyl-7-oxo-4-[[2-oxo-2-(tetradecyloxy)ethyl]thio]-, tetradecyl ester
(CA INDEX NAME)

OTHER NAMES:

CN Octyltin tris(tetradecathioglycollate)
MF C56 H110 O6 S3 Sn
LC STN Files: CA, CAPLUS, CHEMLIST, TOXCENTER, USPATFULL
Other Sources: EINECS**
(**Enter CHEMLIST File for up-to-date regulatory information)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

7 REFERENCES IN FILE CA (1907 TO DATE)
7 REFERENCES IN FILE CAPLUS (1907 TO DATE)

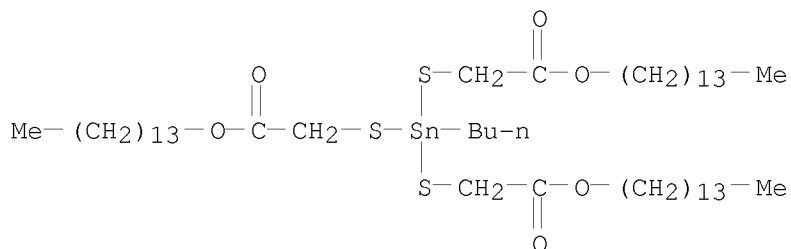
L7 ANSWER 2 OF 15 REGISTRY COPYRIGHT 2009 ACS on STN
RN 72259-65-5 REGISTRY
ED Entered STN: 16 Nov 1984
CN 8-Oxa-3,5-dithia-4-stannadocosanoic acid,
4-butyl-7-oxo-4-[[2-oxo-2-(tetradecyloxy)ethyl]thio]-, tetradecyl ester
(CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Acetic acid, 2,2',2''-[(butylstannylidyne)tris(thio)]tris-, tritetradecyl ester (9CI)

OTHER NAMES:

CN Butyltin tris(tetradecathioglycollate)
MF C52 H102 O6 S3 Sn
LC STN Files: CA, CAPLUS, CHEMLIST, TOXCENTER, USPATFULL
Other Sources: EINECS**, NDSL**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

7 REFERENCES IN FILE CA (1907 TO DATE)

7 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L7 ANSWER 3 OF 15 REGISTRY COPYRIGHT 2009 ACS on STN

RN 55400-47-0 REGISTRY

ED Entered STN: 16 Nov 1984

CN Acetic acid, mercapto-, 2-ethyl-2-[(mercaptoacetyl)oxy]-1,3-propanediyl ester, polymer with (all-Z)- α,α',α'' -1,2,3-propanetriyltris[ω -[(3-carboxy-1-oxo-2-propenyl)oxy]poly[oxy(methyl-1,2-ethanediyl)]] (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Poly[oxy(methyl-1,2-ethanediyl)], $\alpha, \alpha', \alpha''$ -1,2,3-propanetriyltris[ω -(3-carboxy-1-oxo-2-propenyl)oxy]-, (all-Z)-, polymer with 2-ethyl-2-[(mercaptoacetyl)oxy]-1,3-propanediyl bis(mercaptoacetate) (9CI)

OTHER NAMES:

CN Polypropylene glycol glycerol triether tris(hydrogen maleate)-1,1,1-trimethylolpropane trithioglycollate copolymer

$$\text{MF} \quad (\text{C}_{12} \text{H}_{20} \text{O}_6 \text{S}_3 \cdot (\text{C}_3 \text{H}_6 \text{O})_n (\text{C}_3 \text{H}_6 \text{O})_n (\text{C}_3 \text{H}_6 \text{O})_n \text{C}_{15} \text{H}_{14} \text{O}_{12})_x$$

CI	PMS
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
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100	100

PCT Polyester, Polyether, Polythioester, Polythioester formed, Polythioether, Polythioether formed, Polyvinyl

LC STN Files: CA, CAPLUS

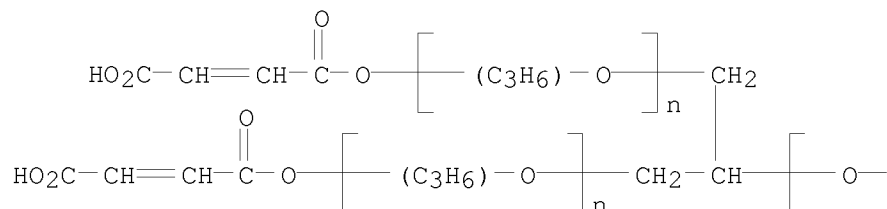
CM 1

CRN 52297-16-2

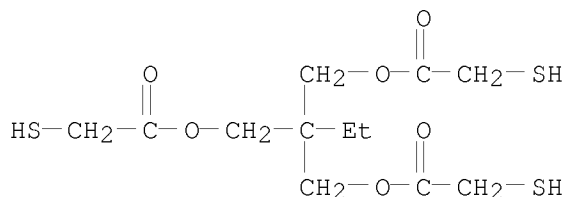
CMF (C3 H6 O)_n (C3 H6 O)_n (C3 H6 O)_n C15 H14 O12

CCI IDS, PMS

PAGE 1-A



CRN 10193-96-1
CMF C12 H20 O6 S3

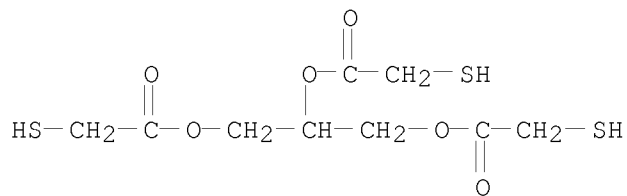


L7 ANSWER 4 OF 15 REGISTRY COPYRIGHT 2009 ACS on STN
RN 52486-43-8 REGISTRY
ED Entered STN: 16 Nov 1984
CN Acetic acid, mercapto-, 1,2,3-propanetriyl ester, polymer with
(all-Z)- α,α',α'' -1,2,3-propanetriyltris[ω -(3-
carboxy-1-oxo-2-propenyl)oxy]poly[oxy(methyl-1,2-ethanediyl)] (9CI) (CA
INDEX NAME)
OTHER CA INDEX NAMES:
CN Poly[oxy(methyl-1,2-ethanediyl)], α,α',α'' -1,2,3-
propanetriyltris[ω -(3-carboxy-1-oxo-2-propenyl)oxy]-, (all-Z)-,
polymer with 1,2,3-propanetriyl tris(mercaptoacetate) (9CI)
OTHER NAMES:
CN Glycerol tris(mercaptoacetate)- α,α',α'' -1,2,3-
propanetriyltris(polypropylene glycol) maleate (1:3) polymer
CN Glycerol trithioglycollate-polypropylene glycol glycerol triether
tris(hydrogen maleate) copolymer
MF (C9 H14 O6 S3 . (C3 H6 O)n (C3 H6 O)n (C3 H6 O)n C15 H14 O12)x
CI PMS
PCT Polyester, Polyether, Polythioester, Polythioester formed, Polythioether,
Polythioether formed, Polyvinyl
LC STN Files: CA, CAPLUS

CRN 52297-16-2
CMF (C3 H6 O)n (C3 H6 O)n (C3 H6 O)n C15 H14 O12
CCI IDS, PMS

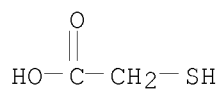
$$\begin{array}{c} \text{HO}_2\text{C}-\text{CH}=\text{CH}-\overset{\text{O}}{\parallel}\text{C}-\text{O}-\left[(\text{C}_3\text{H}_6)-\text{O} \right]_n-\text{CH}_2 \\ | \\ \text{HO}_2\text{C}-\text{CH}=\text{CH}-\overset{\text{O}}{\parallel}\text{C}-\text{O}-\left[(\text{C}_3\text{H}_6)-\text{O} \right]_n-\text{CH}_2-\text{CH}-\left[-\text{O}- \right] \end{array}$$
$$\text{---} (\text{C}_3\text{H}_6) \text{---} \left[\text{---} \text{C} \text{---} \text{O} \text{---} \overset{\text{O}}{\parallel} \text{C} \text{---} \text{CH} = \text{CH} \text{---} \text{CO}_2\text{H} \right]_n$$

CRN 14974-53-9
CMF C9 H14 O6 S3



```
L7 ANSWER 5 OF 15 REGISTRY COPYRIGHT 2009 ACS on STN
RN 52080-69-0 REGISTRY
ED Entered STN: 16 Nov 1984
CN D-Valine, 3-mercapto-, mixt. with mercaptoacetic acid bismuth(3+) sodium
   salt (3:1:3) (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Acetic acid, mercapto-, bismuth(3+) sodium salt (3:1:3), mixt. contg.
   (9CI)
OTHER NAMES:
CN d-Dimethylcysteine-sodium bismuth thioglycollate mixture
FS STEREOSEARCH
MF C5 H11 N O2 S . C2 H4 O2 S . 1/3 Bi . Na
CI MXS
LC STN Files: CA, CAPLUS
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CRN 150-49-2 (68-11-1)
CMF C2 H4 O2 S . 1/3 Bi . Na



● 1/3 Bi(III)

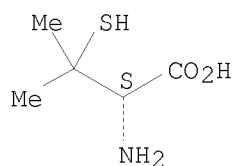
● Na

CM 2

CRN 52-67-5

CMF C5 H11 N O2 S

Absolute stereochemistry.



1 REFERENCES IN FILE CA (1907 TO DATE)

1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L7 ANSWER 6 OF 15 REGISTRY COPYRIGHT 2009 ACS on STN

RN 42249-01-4 REGISTRY

ED Entered STN: 16 Nov 1984

CN Acetic acid, mercapto-, 1,4-butanediyl ester, homopolymer (9CI) (CA INDEX NAME)

OTHER NAMES:

CN 1,4-Butanediol bis(thioglycollate) polymer

MF (C8 H14 O4 S2)x

CI PMS

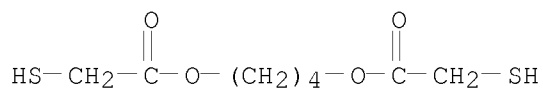
PCT Polyester, Polysulfide, Polysulfide formed, Polythioether, Polythioether formed

LC STN Files: CA, CAPLUS

CM 1

CRN 10193-95-0

CMF C8 H14 O4 S2



1 REFERENCES IN FILE CA (1907 TO DATE)

1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

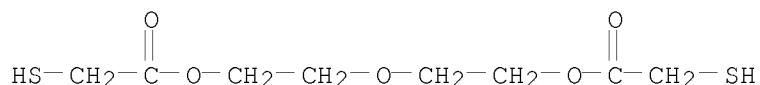
L7 ANSWER 7 OF 15 REGISTRY COPYRIGHT 2009 ACS on STN
RN 42249-00-3 REGISTRY
ED Entered STN: 16 Nov 1984
CN Acetic acid, mercapto-, oxydi-2,1-ethanediyl ester, homopolymer (9CI) (CA INDEX NAME)

OTHER NAMES:

CN Diethyleneglycolbis(thioglycollate)polymer
MF (C8 H14 O5 S2)x
CI PMS
PCT Polyester, Polyether, Polysulfide, Polysulfide formed, Polythioether, Polythioether formed
LC STN Files: CA, CAPLUS

CM 1

CRN 14974-52-8
CMF C8 H14 O5 S2



1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

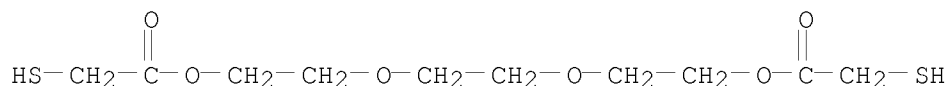
L7 ANSWER 8 OF 15 REGISTRY COPYRIGHT 2009 ACS on STN
RN 40544-92-1 REGISTRY
ED Entered STN: 16 Nov 1984
CN Acetic acid, mercapto-, 1,2-ethanediylbis(oxy-2,1-ethanediyl) ester, homopolymer (9CI) (CA INDEX NAME)

OTHER NAMES:

CN Triethylene glycol bis(thioglycollate) prepolymer
CN Triethyleneglycolbisthioglycollate polymer
MF (C10 H18 O6 S2)x
CI PMS
PCT Polyester, Polyether, Polysulfide, Polysulfide formed, Polythioether, Polythioether formed
LC STN Files: CA, CAPLUS

CM 1

CRN 10193-94-9
CMF C10 H18 O6 S2



1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L7 ANSWER 9 OF 15 REGISTRY COPYRIGHT 2009 ACS on STN
RN 37019-53-7 REGISTRY
ED Entered STN: 16 Nov 1984
CN Acetic acid, 2-[(1,4-dihydro-3-methyl-1,4-dioxo-2-naphthalenyl)thio]-, sodium salt (1:1) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Acetic acid, [(1,4-dihydro-3-methyl-1,4-dioxo-2-naphthalenyl)thio]-,

sodium salt (9CI)

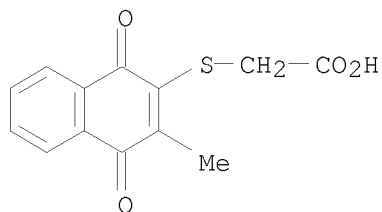
OTHER NAMES:

CN 2-Methyl-1:4-naphthaquinone-3-thioglycollate sodium salt

MF C13 H10 O4 S . Na

LC STN Files: CA, CAPLUS

CRN (6325-58-2)



1 REFERENCES IN FILE CA (1907 TO DATE)

1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L7 ANSWER 10 OF 15 REGISTRY COPYRIGHT 2009 ACS on STN

RN 36118-61-3 REGISTRY

ED Entered STN: 16 Nov 1984

CN Acetic acid, 2,2',2''-[(phenylstannylidyne)tris(thio)]tris-, triisooctyl ester (9CI) (CA INDEX NAME)

OTHER NAMES:

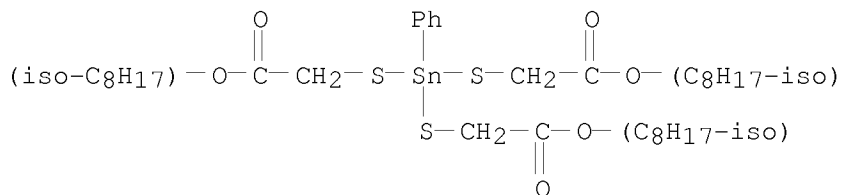
CN Monophenyltintris(isooctyl)thioglycollate

CN Phenyltin tris(isooctyl thioglycolate)

MF C36 H62 O6 S3 Sn

CI IDS

LC STN Files: CA, CAPLUS, IFICDB, IFIPAT, IFIUDB, USPATFULL, USPATOLD



3 REFERENCES IN FILE CA (1907 TO DATE)

2 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L7 ANSWER 11 OF 15 REGISTRY COPYRIGHT 2009 ACS on STN

RN 6780-12-7 REGISTRY

ED Entered STN: 16 Nov 1984

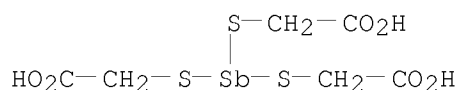
CN Acetic acid, mercapto-, triester with thioantimonic acid (H3SbS3), trisodium salt (8CI) (CA INDEX NAME)

OTHER NAMES:

CN Sodium antimonylthioglycollate

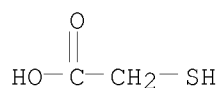
MF C6 H9 O6 S3 Sb . 3 Na

CRN (736072-12-1)



● 3 Na

L7 ANSWER 12 OF 15 REGISTRY COPYRIGHT 2009 ACS on STN
 RN 5421-46-5 REGISTRY
 ED Entered STN: 16 Nov 1984
 CN Acetic acid, 2-mercapto-, ammonium salt (1:1) (CA INDEX NAME)
 OTHER CA INDEX NAMES:
 CN Acetic acid, mercapto-, monoammonium salt (8CI, 9CI)
 OTHER NAMES:
 CN Ammonium mercaptoacetate
 CN Ammonium thioglycolate
 CN Ammonium thioglycollate
 CN Thiofaco A-50
 CN Thioglycolic acid ammonium salt
 DR 860540-22-3, 8046-21-7, 67124-12-3, 34316-71-7
 MF C2 H4 O2 S . H3 N
 CI COM
 LC STN Files: AQUIRE, BIOSIS, CA, CAPLUS, CASREACT, CBNB, CHEMCATS,
 CHEMLIST, CIN, CSCHEM, CSNB, EMBASE, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA,
 MSDS-OHS, PROMT, RTECS*, TOXCENTER, ULIDAT, USPAT2, USPATFULL, USPATOLD
 (*File contains numerically searchable property data)
 Other Sources: DSL**, EINECS**, TSCA**
 (**Enter CHEMLIST File for up-to-date regulatory information)
 CRN (68-11-1)



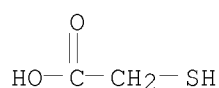
● NH₃

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

542 REFERENCES IN FILE CA (1907 TO DATE)
 3 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 542 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L7 ANSWER 13 OF 15 REGISTRY COPYRIGHT 2009 ACS on STN
 RN 814-71-1 REGISTRY
 ED Entered STN: 16 Nov 1984
 CN Acetic acid, 2-mercapto-, calcium salt (2:1) (CA INDEX NAME)
 OTHER CA INDEX NAMES:
 CN Acetic acid, mercapto-, calcium salt (2:1) (8CI, 9CI)
 OTHER NAMES:
 CN Calcium thioglycolate
 CN Calcium thioglycollate
 CN Depil

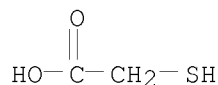
CN Ebacream
 CN Jully
 CN Surgex
 CN Vikor
 MF C2 H4 O2 S . 1/2 Ca
 CI COM
 LC STN Files: AGRICOLA, BIOSIS, CA, CAPLUS, CHEMCATS, CHEMLIST, CIN,
 CSCHEM, EMBASE, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MRCK*, MSDS-OHS,
 PROMT, TOXCENTER, USPATFULL, USPATOLD
 (*File contains numerically searchable property data)
 Other Sources: DSL**, EINECS**, TSCA**
 (**Enter CHEMLIST File for up-to-date regulatory information)
 CRN (68-11-1)



● 1/2 Ca

139 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 140 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L7 ANSWER 14 OF 15 REGISTRY COPYRIGHT 2009 ACS on STN
 RN 645-74-9 REGISTRY
 ED Entered STN: 16 Nov 1984
 CN Aurate(1-), [mercaptoacetato(2-)-O,S]-, calcium (2:1) (9CI) (CA INDEX NAME)
 OTHER CA INDEX NAMES:
 CN Acetic acid, mercapto-, calcium gold(1+) salt (2:1:2) (8CI)
 CN Acetic acid, mercapto-, gold complex
 OTHER NAMES:
 CN Calcium aurothioglycolate
 CN Calcium aurothioglycollate
 CN Myoral
 CN Nedaurine
 DR 16925-54-5
 MF C2 H4 O2 S . Au . 1/2 Ca
 LC STN Files: CA, CAPLUS, CHEMLIST
 Other Sources: EINECS**
 (**Enter CHEMLIST File for up-to-date regulatory information)
 CRN (68-11-1)

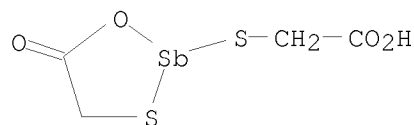


● Au(I)

● 1/2 Ca

1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L7 ANSWER 15 OF 15 REGISTRY COPYRIGHT 2009 ACS on STN
RN 539-54-8 REGISTRY
ED Entered STN: 16 Nov 1984
CN Acetic acid, 2-[(5-oxo-1,3,2-oxathiaastibolan-2-yl)thio]-, sodium salt
(1:1) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 1,3,2-Oxathiaastibolane, acetic acid deriv.
CN Acetic acid, [(5-oxo-1,3,2-oxathiaastibolan-2-yl)thio]-, sodium salt (8CI,
9CI)
OTHER NAMES:
CN Antimony sodium thioacetate
CN Antimony sodium thioglycollate
DR 1186-45-4
MF C4 H5 O4 S2 Sb . Na
LC STN Files: CA, CAPLUS, MRCK*, TOXCENTER, USAN
(*File contains numerically searchable property data)
CRN (1843-43-2)



● Na

3 REFERENCES IN FILE CA (1907 TO DATE)
3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

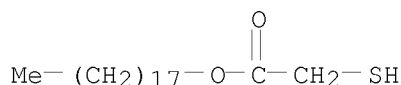
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E1 1 OCTADECYL THIOCYANATE/CN
E2 1 OCTADECYL THIOGLYCOLATE/CN
E3 0 --> OCTADECYL THIOGLYCOLLATE/CN
E4 1 OCTADECYL THIOPEROXYDIPHOSPHATE/CN
E5 1 OCTADECYL THIOPYROPHOSPHATE/CN
E6 1 OCTADECYL THIOPYROPHOSPHATE, (C18H37O)4P2O2S/CN
E7 1 OCTADECYL THIOPYROPHOSPHATE, COMPD. WITH HGI2/CN
E8 1 OCTADECYL THIOSILANE ((C18H37S)4SI)/CN
E9 1 OCTADECYL TITANATE/CN

E10 1 OCTADECYL TITANATE(IV) ((C18H37O)(HO)3TI)/CN
 E11 1 OCTADECYL TITANATE(IV) ((C18H37O)4TI)/CN
 E12 1 OCTADECYL TITANATE, (C18H37O)4TI/CN

=> s e2;d

L8 1 "OCTADECYL THIOGLYCOLATE"/CN

L8 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2009 ACS on STN
 RN 10220-46-9 REGISTRY
 ED Entered STN: 16 Nov 1984
 CN Acetic acid, 2-mercapto-, octadecyl ester (CA INDEX NAME)
 OTHER CA INDEX NAMES:
 CN Acetic acid, mercapto-, octadecyl ester (7CI, 8CI, 9CI)
 OTHER NAMES:
 CN NSC 65478
 CN Octadecyl mercaptoacetate
 CN Octadecyl thioglycolate
 CN Stearyl thioglycolate
 CN Thioglycolate octadecyl ester
 CN Thioglycolic acid octadecyl ester
 MF C20 H40 O2 S
 CI COM
 LC STN Files: BIOSIS, CA, CAPLUS, CHEMCATS, CHEMLIST, CSCHEM, GMELIN*,
 IFICDB, IFIPAT, IFIUDB, MEDLINE, TOXCENTER, USPAT2, USPATFULL, USPATOLD
 (*File contains numerically searchable property data)
 Other Sources: EINECS**, NDSL**, TSCA**
 (**Enter CHEMLIST File for up-to-date regulatory information)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

50 REFERENCES IN FILE CA (1907 TO DATE)
 4 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 50 REFERENCES IN FILE CAPLUS (1907 TO DATE)

=> e octadecylthioglycollate/cn

E1 1 OCTADECYLTHIO/CN
 E2 1 OCTADECYLTHIO-1,4-BENZOQUINONE/CN
 E3 0 --> OCTADECYLTHIOGLYCOLLATE/CN
 E4 1 OCTADECYLTHIOHYDROQUINONE/CN
 E5 1 OCTADECYLTHIOL/CN
 E6 1 OCTADECYLTHIOSEMICARBAZIDE/CN
 E7 1 OCTADECYLTHIOUREA/CN
 E8 1 OCTADECYLTITANIUM TRICHLORIDE/CN
 E9 1 OCTADECYLTOLUENESULFONIC ACID ETHANOLAMINE SALT/CN
 E10 1 OCTADECYLTRI-DECYLSILANE/CN
 E11 1 OCTADECYLTRIACETOXYSILANE/CN
 E12 1 OCTADECYLTRIBUTYLAMMONIUM/CN

=> e cetyl thioglycolate/cn

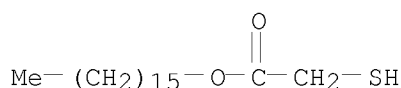
E1 1 CETYL SULFONE/CN
 E2 1 CETYL TETRAETHYLPHOSPHORODIAMIDITE/CN
 E3 1 --> CETYL THIOGLYCOLATE/CN

E4 1 CETYL TITANATE/CN
 E5 1 CETYL TOSYLATE/CN
 E6 1 CETYL TRIFLATE/CN
 E7 1 CETYL VINYL ETHER/CN
 E8 1 CETYL VINYL ETHER POLYMER/CN
 E9 1 CETYL VINYL ETHER-2,2,4-TRIMETHYL-1,3-PENTANEDIOL 1-ISOBUTYR
 ATE 3-METHACRYLATE-VINYL CHLORIDE COPOLYMER/CN
 E10 1 CETYL VINYL ETHER-2,2,4-TRIMETHYL-1,3-PENTANEDIOL 3-ACRYLATE
 1-ISOBUTYRATE-VINYL CHLORIDE COPOLYMER/CN
 E11 1 CETYL VINYL ETHER-DODECYL VINYL ETHER-MYRISTYL VINYL ETHER C
 OPOLYMER/CN
 E12 1 CETYL VINYL ETHER-ETHYLENE-METHYL METHACRYLATE-VINYL CHLORID
 E COPOLYMER/CN

=> s e3;d

L9 1 "CETYL THIOGLYCOLATE"/CN

L9 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2009 ACS on STN
 RN 22811-02-5 REGISTRY
 ED Entered STN: 16 Nov 1984
 CN Acetic acid, 2-mercapto-, hexadecyl ester (CA INDEX NAME)
 OTHER CA INDEX NAMES:
 CN Acetic acid, mercapto-, hexadecyl ester (8CI, 9CI)
 OTHER NAMES:
 CN Cetyl thioglycolate
 CN Hexadecyl mercaptoacetate
 MF C18 H36 O2 S
 LC STN Files: BEILSTEIN*, BIOSIS, CA, CAPLUS, CHEMLIST, CSCHEM, GMELIN*,
 MEDLINE, TOXCENTER, USPATFULL
 (*File contains numerically searchable property data)
 Other Sources: EINECS**
 (**Enter CHEMLIST File for up-to-date regulatory information)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

6 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 6 REFERENCES IN FILE CAPLUS (1907 TO DATE)

=> file plus

'PLUS' IS NOT A VALID FILE NAME

SESSION CONTINUES IN FILE 'REGISTRY'

Enter "HELP FILE NAMES" at an arrow prompt (=>) for a list of files
 that are available. If you have requested multiple files, you can
 specify a corrected file name or you can enter "IGNORE" to continue
 accessing the remaining file names entered.

=> s 106-94-5 and (2885-00-9 or 2917-26-2 or 22811-02-5 or 10220-46-9)

1 106-94-5

(106-94-5/RN)

1 2885-00-9

(2885-00-9/RN)

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1 2917-26-2
  (2917-26-2/RN)
1 22811-02-5
  (22811-02-5/RN)
1 10220-46-9
  (10220-46-9/RN)
L10      0 106-94-5 AND (2885-00-9 OR 2917-26-2 OR 22811-02-5 OR 10220-46-9
          )
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=> file caplus

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FULL ESTIMATED COST	77.96	87.74
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	0.00	-0.82

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FILE COVERS 1907 - 21 May 2009 VOL 150 ISS 21
FILE LAST UPDATED: 20 May 2009 (20090520/ED)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Feb 2009
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Feb 2009

CAPLUS now includes complete International Patent Classification (IPC) reclassification data for the third quarter of 2008.

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=> s 106-94-5 and (2885-00-9 or 2917-26-2 or 22811-02-5 or 10220-46-9)
REGISTRY INITIATED
Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L12 4963 L11

REGISTRY INITIATED
Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L14 50 L13

REGISTRY INITIATED
Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L16 6 L15

REGISTRY INITIATED
Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L18 1621 L17

REGISTRY INITIATED
Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L20 2011 L19

L21 11 L12 AND (L20 OR L18 OR L16 OR L14)

=> s l21 and (ag or silver)
 342330 AG
 379472 SILVER

L22 1 L21 AND (AG OR SILVER)

=> d

L22 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2009 ACS on STN
AN 2004:847649 CAPLUS
DN 141:353637
TI Pretreatment of Ag-alloy surface with organosulfur compounds for
tarnishing prevention
IN Johns, Peter Gammon; Harrison, Clare Elizabeth
PA Middlesex Silver Co. Limited, UK
SO PCT Int. Appl., 43 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	WO 2004087996	A1	20041014	WO 2004-GB1373	20040330
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	AU 2004225693	A1	20041014	AU 2004-225693	20040330
	CA 2520807	A1	20041014	CA 2004-2520807	20040330
	EP 1611267	A1	20060104	EP 2004-724313	20040330
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK				
	CN 1780937	A	20060531	CN 2004-80011375	20040330
	JP 2006523266	T	20061012	JP 2006-506057	20040330
	IN 2005DN04346	A	20070831	IN 2005-DN4346	20050926
	MX 2005010452	A	20060510	MX 2005-10452	20050928
	US 20070039665	A1	20070222	US 2005-551476	20050929
PRAI	GB 2003-7290	A	20030331		
	WO 2004-GB1373	W	20040330		
RE.CNT	9	THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT			

=> s 121 not 122

L23 10 L21 NOT L22

=> d 1-10 all

L23 ANSWER 1 OF 10 CAPLUS COPYRIGHT 2009 ACS on STN
AN 1993:472255 CAPLUS
DN 119:72255
OREF 119:13013a,13016a
ED Entered STN: 21 Aug 1993
TI Preparation of alkanamidoammonium compounds as hair growers
IN Yokomori, Sadakazu; Takahashi, Yuki; Misawa, Yoko; Matsumoto, Taro;
Hatayama, Katsuo
PA Taisho Pharmaceutical Co., Ltd., Japan
SO PCT Int. Appl., 35 pp.
CODEN: PIXXD2

DT Patent
 LA Japanese
 IC ICM C07C235-10
 ICS A61K007-06; C07C317-44; C07C323-60
 CC 23-18 (Aliphatic Compounds)
 Section cross-reference(s): 62

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9303005	A1	19930218	WO 1992-JP1014	19920807
	W: AU, CA, JP, KR, US				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, SE				
	JP 05043529	A	19930223	JP 1991-287374	19910810
	AU 9224027	A	19930302	AU 1992-24027	19920807
	AU 656625	B2	19950209		
	CN 1082534	A	19940223	CN 1993-101376	19930210
PRAI	JP 1991-287374	A	19910810		
	WO 1992-JP1014	A	19920807		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 9303005	ICM	C07C235-10
	ICS	A61K007-06; C07C317-44; C07C323-60
	IPCI	C07C0235-10 [ICM, 5]; C07C0235-00 [ICM, 5, C*]; A61K0007-06 [ICS, 5]; C07C0317-44 [ICS, 5]; C07C0317-00 [ICS, 5, C*]; C07C0323-60 [ICS, 5]; C07C0323-00 [ICS, 5, C*]
	IPCR	A61K0008-00 [I, C*]; A61K0008-00 [I, A]; A61K0008-30 [I, C*]; A61K0008-40 [I, A]; A61K0008-46 [I, A]; A61Q0005-00 [I, C*]; A61Q0005-00 [I, A]; A61Q0007-00 [I, C*]; A61Q0007-00 [I, A]; C07C0235-00 [I, C*]; C07C0235-06 [I, A]; C07C0235-10 [I, A]; C07C0235-16 [I, A]; C07C0235-26 [I, A]; C07C0317-00 [I, C*]; C07C0317-44 [I, A]; C07C0323-00 [I, C*]; C07C0323-52 [I, A]; C07C0323-59 [I, A]; C07C0323-60 [I, A]
JP 05043529	ECLA	C07C235/10; C07C317/44; C07C323/60; M07C
	IPCI	C07C0235-10 [ICM, 5]; C07C0235-00 [ICM, 5, C*]; A61K0007-06 [ICS, 5]; C07C0317-44 [ICS, 5]; C07C0317-00 [ICS, 5, C*]; C07C0323-60 [ICS, 5]; C07C0323-00 [ICS, 5, C*]
	IPCR	A61K0008-00 [I, C*]; A61K0008-00 [I, A]; A61K0008-30 [I, C*]; A61K0008-40 [I, A]; A61K0008-46 [I, A]; A61Q0005-00 [I, C*]; A61Q0005-00 [I, A]; A61Q0007-00 [I, C*]; A61Q0007-00 [I, A]; C07C0235-00 [I, C*]; C07C0235-06 [I, A]; C07C0235-10 [I, A]; C07C0235-16 [I, A]; C07C0235-26 [I, A]; C07C0317-00 [I, C*]; C07C0317-44 [I, A]; C07C0323-00 [I, C*]; C07C0323-52 [I, A]; C07C0323-59 [I, A]; C07C0323-60 [I, A]
AU 9224027	ECLA	C07C235/10; C07C317/44; C07C323/60; M07C
	IPCI	C07C0235-10 [ICM, 5]; C07C0235-00 [ICM, 5, C*]; A61K0007-06 [ICS, 5]; C07C0317-44 [ICS, 5]; C07C0317-00 [ICS, 5, C*]; C07C0323-60 [ICS, 5]; C07C0323-00 [ICS, 5, C*]
	IPCR	A61K0008-00 [I, C*]; A61K0008-00 [I, A]; A61K0008-30 [I, C*]; A61K0008-40 [I, A]; A61K0008-46 [I, A]; A61Q0005-00 [I, C*]; A61Q0005-00 [I, A]; A61Q0007-00 [I, C*]; A61Q0007-00 [I, A]; C07C0235-00 [I, C*]; C07C0235-06 [I, A]; C07C0235-10 [I, A]; C07C0235-16 [I, A]; C07C0235-26 [I, A]; C07C0317-00 [I, C*]; C07C0317-44 [I, A]; C07C0323-00 [I, C*]; C07C0323-52 [I, A]; C07C0323-59 [I, A]; C07C0323-60 [I, A]
CN 1082534	ECLA	C07C235/10; C07C317/44; C07C323/60; M07C
	IPCI	C07C0323-52 [ICM, 5]; C07C0323-59 [ICS, 5]; C07C0323-00 [ICS, 5, C*]; C07C0235-06 [ICS, 5]; C07C0235-26 [ICS, 5]; C07C0235-00 [ICS, 5, C*]

IPCR A61K0008-00 [I,C*]; A61K0008-00 [I,A]; A61K0008-30 [I,C*]; A61K0008-40 [I,A]; A61K0008-46 [I,A]; A61Q0005-00 [I,C*]; A61Q0005-00 [I,A]; A61Q0007-00 [I,C*]; A61Q0007-00 [I,A]; C07C0235-00 [I,C*]; C07C0235-06 [I,A]; C07C0235-10 [I,A]; C07C0235-16 [I,A]; C07C0235-26 [I,A]; C07C0317-00 [I,C*]; C07C0317-44 [I,A]; C07C0323-00 [I,C*]; C07C0323-52 [I,A]; C07C0323-59 [I,A]; C07C0323-60 [I,A]; C07C235/10; C07C317/44; C07C323/60; M07C

ECLA

OS MARPAT 119:72255

AB [R1A-R2-CONR3-R4-N+R5R6R7].1/mXm- (R1 = C1-22 alkyl, C3-8 cycloalkyl; R2 = C1-15 alkylene; R3 = H, C1-5 alkyl; R4 = C2-10 alkylene; R5, R6 = C1-5 alkyl; R7 = C1-22 alkyl, C2-10 alkenyl, phenyl-C1-5 alkyl; A = O, S(O)n; n = 0-2; Xm- = anion where m = integer corresponding to the anion charge number) are prepared Thus, thiolation of 11-bromoundecanoic acid with dodecyl mercaptan in the presence of NaOH in EtOH at 60° and amidation of the resulting 11-(dodecylthio)undecanoic acid with N,N-dimethyl-1,3-diaminopropane in refluxing xylene with removal of H2O gave N-[3-(dimethylamino)propyl]-11-(dodecylthio)undecanamide which was methylated by MeI in EtOH at room temperature for 3 days to give N-[3-[11-(dodecylthio)undecanamido]propyl]-N,N,N-trimethylammonium iodide. When 2% solution of N-benzyl-N-[3-[11-(decylthio)undecanamido]propyl]-N,N-dimethylammonium iodide in EtOH at 0.2 Ml/day for 10 days was applied to a mice in the back from which hairs were clipped, the hair-removed part showed nearly 100% hair growth vs. 0% for the control animal. A total of 41 I were prepared

ST alkanamidoammonium prepn hair grower

IT Hair preparations
(growth stimulants, alkanamidoammonium compds.)

IT 124-38-9, Carbon dioxide, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(dry ice, reaction of, in preparation of alkanamidoammonium hair grower)

IT 148414-23-7P 148414-24-8P 148414-25-9P 148414-26-0P 148414-27-1P
148414-28-2P 148414-29-3P 148414-30-6P 148414-31-7P 148414-32-8P
148414-33-9P 148414-34-0P 148414-35-1P 148414-36-2P 148414-37-3P
148414-38-4P 148414-39-5P 148414-40-8P 148414-41-9P 148414-42-0P
148414-43-1P 148414-44-2P 148414-45-3P 148414-46-4P 148414-47-5P
148414-48-6P 148414-49-7P 148414-50-0P 148414-51-1P 148414-52-2P
148414-53-3P 148414-54-4P 148754-16-9P 148754-17-0P 148754-18-1P
148754-19-2P 148754-20-5P 148754-21-6P 148754-22-7P 148754-23-8P
148781-06-0P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of, as hair grower)

IT 1462-53-9P, 3-(Tetradecylthio)propionic acid 3062-66-6P,
3-(Octadecylthio)propionic acid 5454-93-3P, 11-(Dodecylthio)undecanoic acid 7031-23-4P, 3-(Methylthio)propionyl chloride 83518-31-4P,
1-(4-Bromobutoxy)tridecane 103808-51-1P, (Octadecylthio)acetic acid 103808-53-3P, 11-(Decylthio)undecanoic acid 148429-60-1P,
11-(Isopentylthio)undecanoic acid 148429-61-2P,
11-(Cyclohexylthio)undecanoic acid 148429-62-3P,
5-(Tetradecylthio)valeric acid 148429-63-4P, 5-(Hexadecylthio)valeric acid 148429-64-5P, 5-(Octadecylthio)valeric acid 148429-65-6P
148429-66-7P, 2-(Octadecylthio)propionic acid 148429-67-8P,
3-(Tetradecylsulfonyl)propionic acid 148429-68-9P,
3-(Octadecylsulfonyl)propionic acid 148429-69-0P, 5-(Tridecyloxy)valeric acid 148429-70-3P, 5-(Tetradecyloxy)valeric acid 148429-71-4P,
5-(Hexadecyloxy)pentanonitrile 148429-72-5P,
5-(Octadecyloxy)pentanonitrile 148429-73-6P 148429-74-7P
148429-75-8P 148429-76-9P 148429-77-0P 148429-78-1P 148429-79-2P
148429-80-5P 148429-81-6P 148429-82-7P 148429-83-8P 148429-84-9P
148429-85-0P 148429-86-1P 148429-87-2P 148429-88-3P 148429-89-4P
148429-90-7P 148429-91-8P 148429-92-9P 148429-93-0P 148429-94-1P

148429-95-2P 148429-96-3P 148429-97-4P 148429-98-5P 148429-99-6P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of, as intermediate for alkanamidoammonium hair grower)
 IT 74-83-9, Methyl bromide, reactions 74-88-4, Methyl iodide, reactions
 77-78-1 79-08-3, Bromoacetic acid 80-48-8, Methyl p-toluenesulfonate
 80-58-0, 2-Bromobutyric acid 100-36-7, N,N-Diethyl-1,2-ethylenediamine
 100-44-7, Benzyl chloride, reactions 104-78-9,
 N,N-Diethyl-1,3-diaminopropane 106-94-5, Propyl bromide
 106-95-6, Allyl bromide, reactions 108-00-9,
 N,N-Dimethyl-1,2-ethylenediamine 109-55-7,
 N,N-Dimethyl-1,3-diaminopropane 110-52-1, 1,4-Dibromobutane 112-55-0,
 Dodecyl mercaptan 112-70-9, 1-Tridecanol 112-72-1, 1-Tetradecanol
 112-92-5, 1-Octadecanol 512-56-1, Trimethyl phosphate 590-92-1,
 3-Bromopropionic acid 598-72-1, 2-Bromopropionic acid 2067-33-6,
 5-Bromovaleric acid 2834-05-1, 11-Bromoundecanoic acid 2885-00-9
 , Octadecyl mercaptan 5414-21-1 36653-82-4, 1-Hexadecanol 53369-71-4
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction of, in preparation of alkanamidoammonium hair grower)
 RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE
 (1) Anon; JP 50019719 A CAPLUS
 (2) Anon; JP 54130509 A CAPLUS

L23 ANSWER 2 OF 10 CAPLUS COPYRIGHT 2009 ACS on STN
 AN 1992:263476 CAPLUS
 DN 116:263476
 OREF 116:44527a,44530a
 ED Entered STN: 27 Jun 1992
 TI Liquid heat capacity for 300 organics
 AU Yaws, Carl L.; Pan, Xiang
 CS Lamar Univ., Beaumont, TX, 77710, USA
 SO Chemical Engineering (New York, NY, United States) (1992), 99(4), 130-5
 CODEN: CHEEA3; ISSN: 0009-2460
 DT Journal
 LA English
 CC 69-2 (Thermodynamics, Thermochemistry, and Thermal Properties)
 Section cross-reference(s): 22
 AB A correlation was developed for the calcn. of the heat capacities of liquid
 organic compds. as functions of temperature (T). Values were calculated for
 300
 compds. and the coeffs. of the correlation equation, $C_p = A + BT + CT^2$,
 are listed, with T in °K and the temperature interval for which the
 equation is valid for each compound
 ST heat capacity org compd correlation equation
 IT Organic compounds, properties
 RL: PRP (Properties)
 (heat capacities of liquid, correlation equation for)
 IT Heat capacity
 (of organic compds. in liquid state, correlation equations for)
 IT 50-00-0, Formaldehyde, properties 56-23-5, Carbon tetrachloride,
 properties 60-29-7, Ethyl ether, properties 62-53-3, Aniline,
 properties 64-17-5, Ethyl alcohol, properties 64-18-6, Formic acid,
 properties 64-19-7, Acetic acid, properties 65-85-0, Benzoic acid,
 properties 66-25-1, Hexanal 67-56-1, Methanol, properties 67-63-0,
 Isopropyl alcohol, properties 67-64-1, Acetone, properties 67-66-3,
 Chloroform, properties 71-23-8, Propyl alcohol, properties 71-36-3,
 Butyl alcohol, properties 71-41-0, Pentyl alcohol, properties 74-83-9,
 Bromomethane, properties 74-87-3, Chloromethane, properties 74-88-4,
 Iodomethane, properties 74-89-5, Methylamine, properties 74-93-1,
 Methanethiol, properties 74-96-4, Bromoethane 75-00-3, Chloroethane
 75-01-4, Chloroethene, properties 75-02-5, Fluoroethene 75-03-6,
 Iodoethane 75-04-7, Ethylamine, properties 75-05-8, Acetonitrile,

properties 75-07-0, Acetaldehyde, properties 75-08-1, Ethanethiol
 75-09-2, Dichloromethane, properties 75-10-5, Difluoromethane 75-11-6,
 Diiodomethane 75-15-0, Carbon disulfide, properties 75-18-3, Methyl
 sulfide 75-21-8, Ethylene oxide, properties 75-26-3, 2-Bromopropane
 75-29-6, 2-Chloropropane 75-30-9, 2-Iodopropane 75-33-2,
 2-Propanethiol 75-34-3, 1,1-Dichloroethane 75-35-4,
 1,1-Dichloroethene, properties 75-36-5, Acetyl chloride 75-37-6,
 1,1-Difluoroethane 75-38-7, 1,1-Difluoroethene 75-43-4,
 Dichlorofluoromethane 75-45-6, Chlorodifluoromethane 75-46-7,
 Trifluoromethane 75-47-8, Triiodomethane 75-50-3, Trimethylamine,
 properties 75-52-5, Nitromethane, properties 75-56-9, Propylene oxide,
 properties 75-64-9, tert-Butylamine, properties 75-65-0, tert-Butyl
 alcohol, properties 75-66-1, 2-Methyl-2-propanethiol 75-69-4,
 Trichlorofluoromethane 75-71-8, Dichlorodifluoromethane 75-72-9,
 Chlorotrifluoromethane 75-73-0, Carbon tetrafluoride 75-85-4,
 tert-Pentyl alcohol 76-01-7, Pentachloroethane 76-13-1,
 1,1,2-Trichlorotrifluoroethane 76-14-2, 1,2-Dichlorotetrafluoroethane
 76-16-4, Hexafluoroethane 78-75-1, 1,2-Dibromopropane 78-76-2,
 2-Bromobutane 78-82-0, Isobutyronitrile 78-86-4, 2-Chlorobutane
 78-87-5, 1,2-Dichloropropane 78-92-2, sec-Butyl alcohol 78-93-3,
 2-Butanone, properties 79-00-5, 1,1,2-Trichloroethane 79-01-6,
 Trichloroethene, properties 79-10-7, Acrylic acid, properties 79-34-5,
 1,1,2,2-Tetrachloroethane 95-48-7, o-Cresol, properties 95-50-1,
 o-Dichlorobenzene 96-18-4, 1,2,3-Trichloropropane 98-08-8 106-44-5,
 p-Cresol, properties 106-46-7, p-Dichlorobenzene 106-93-4,
 1,2-Dibromoethane 106-94-5, 1-Bromopropane 106-95-6,
 3-Bromo-1-propene, properties 107-03-9, 1-Propanethiol 107-05-1,
 3-Chloro-1-propene 107-06-2, 1,2-Dichloroethane, properties 107-08-4,
 1-Iodopropane 107-10-8, Propylamine, properties 107-12-0,
 Propionitrile 107-13-1, Acrylonitrile, properties 107-18-6, Allyl
 alcohol, properties 107-21-1, Ethylene glycol, properties 107-84-6,
 1-Chloro-3-methylbutane 107-87-9, 2-Pentanone 108-20-3, Isopropyl
 ether 108-24-7, Acetic anhydride 108-39-4, m-Cresol, properties
 108-86-1, Bromobenzene, properties 108-90-7, Chlorobenzene, properties
 108-95-2, Phenol, properties 108-98-5, Benzenethiol, properties
 108-99-6, 3-Picoline 109-06-8, 2-Picoline 109-65-9, 1-Bromobutane
 109-69-3, 1-Chlorobutane 109-73-9, Butylamine, properties 109-74-0,
 Butyronitrile 109-79-5, 1-Butanethiol 109-89-7, Diethylamine,
 properties 110-00-9, Furan 110-01-0, Thiacyclopentane 110-02-1,
 Thiophene 110-53-2, 1-Bromopentane 110-62-3, Valeraldehyde 110-66-7,
 1-Pentanethiol 110-81-6, Ethyl disulfide 110-86-1, Pyridine,
 properties 111-27-3, Hexyl alcohol, properties 111-31-9, 1-Hexanethiol
 111-43-3, Propyl ether 111-47-7, Propyl sulfide 111-70-6, Heptyl
 alcohol 111-71-7, Heptanal 111-87-5, Octyl alcohol, properties
 111-88-6, 1-Octanethiol 112-30-1, Decyl-alcohol 112-31-2, Decanal
 112-42-5, Undecyl alcohol 112-51-6, Pentyl disulfide 112-53-8, Dodecyl
 alcohol 112-55-0, 1-Dodecanethiol 112-70-9, 1-Tridecanol 112-72-1,
 1-Tetradecanol 112-92-5, 1-Octadecanol 115-10-6, Methyl ether
 115-25-3, Octafluorocyclobutane 121-44-8, Triethylamine, properties
 123-38-6, Propionaldehyde, properties 123-72-8, Butyraldehyde
 123-75-1, Pyrrolidine, properties 124-13-0, Octanal 124-19-6, Nonanal
 124-38-9, Carbon dioxide, properties 124-40-3, Dimethylamine, properties
 127-18-4, Tetrachloroethene, properties 141-78-6, Ethyl acetate,
 properties 142-28-9, 1,3-Dichloropropane 142-96-1, Butyl ether
 143-08-8, Nonyl alcohol 143-10-2, 1-Decanethiol 151-56-4,
 Ethylenimine, properties 156-59-2, cis-1,2-Dichloroethene 156-60-5,
 trans-1,2-Dichloroethene 287-27-4, Thiacyclobutane 352-32-9,
 p-Fluorotoluene 352-93-2, Ethylsulfide 353-36-6, Fluoroethane
 359-11-5, Trifluoroethene 367-11-3, o-Difluorobenzene 372-18-9,
 m-Difluorobenzene 420-12-2, Thiacyclopropane 420-26-8, 2-Fluoropropane
 420-46-2, 1,1,1-Trifluoroethane 460-13-9, 1-Fluoropropane 462-06-6,
 Fluorobenzene 463-58-1, Carbonyl sulfide 507-19-7,

2-Bromo-2-methylpropane 507-20-0, 2-Chloro-2-methylpropane 513-36-0,
 1-Chloro-2-methylpropane 513-44-0, 2-Methyl-1-propanethiol 513-53-1,
 2-Butanethiol 533-98-2, 1,2-Dibromobutane 540-36-3, p-Difluorobenzene
 540-54-5, 1-Chloropropane 540-67-0, Ethyl methyl ether 541-73-1,
 m-Dichlorobenzene 543-59-9, 1-Chloropentane 544-40-1, Butyl sulfide
 554-14-3, 2-Methylthiophene 556-56-9, 3-Iodo-1-propene 557-17-5,
 Methyl propyl ether 558-17-8, 2-Iodo-2-methylpropane 591-50-4,
 Iodobenzene 593-53-3, Fluoromethane 593-60-2, Bromoethylene
 593-70-4, Chlorofluoromethane 594-20-7, 2,2-Dichloropropane 594-36-5,
 2-Chloro-2-methylbutane 594-51-4, 2,3-Dibromo-2-methylbutane 598-29-8,
 1,2-Diiodopropane 598-53-8, Methyl isopropyl ether 616-44-4,
 3-Methylthiophene 624-73-7, 1,2-Diiodoethane 624-89-5, Ethyl methyl
 sulfide 624-92-0, Methyl disulfide 625-80-9, Isopropyl sulfide
 628-29-5, Butyl methyl sulfide 629-19-6, Propyl disulfide 629-45-8,
 Butyl disulfide 629-65-2, Heptyl sulfide 629-76-5, 1-Pentadecanol
 629-96-9, 1-Eicosanol 630-08-0, Carbon monoxide, properties 638-46-0,
 Butyl ethyl sulfide 693-83-4, Decyl sulfide 822-27-5, Octyl disulfide
 872-10-6, Pentyl sulfide 929-98-6, Nonyl sulfide 1454-84-8,
 1-Nonadecanol 1454-85-9, 1-Heptadecanol 1455-21-6, 1-Nonanethiol
 1551-21-9, Isopropyl methyl sulfide 1613-46-3, Butyl propyl sulfide
 1613-51-0, Thiacyclohexane 1630-77-9, cis-1,2-Difluoroethene
 1630-78-0, trans-1,2-Difluoroethene 1634-04-4, Methyl-tert-butyl ether
 1639-09-4, 1-Heptanethiol 1679-07-8, Cyclopentanethiol 1679-09-0,
 2-Methyl-2-butanethiol 1741-83-9, Methyl pentyl sulfide 2079-95-0,
 1-Tetradecanethiol 2690-08-6, Octyl sulfide 2851-83-4, Dodecyl ethyl
 sulfide 2885-00-9, 1-Octadecanethiol 2917-26-2,
 1-Hexadecanethiol 3698-89-3, Dodecyl methyl sulfide 3698-93-9, Octyl
 propyl sulfide 3698-94-0, Ethyl octyl sulfide 3698-95-1, Methyl octyl
 sulfide 3877-15-4, Methyl propyl sulfide 4110-50-3 4485-77-2, Nonyl
 disulfide 4753-80-4, Thiacycloheptane 5332-52-5, 1-Undecanethiol
 5408-86-6, 2,3-Dibromobutane 6163-66-2, tert-Butyl ether 6294-31-1,
 Hexyl sulfide

RL: PRP (Properties)

(heat capacity of, correlation equation for)

IT 6863-58-7, sec-Butyl ether 7289-44-3, Methyl undecyl sulfide
 7289-45-4, Methyl tetradecyl sulfide 7309-44-6, Ethyl hexyl sulfide
 10496-15-8, Hexyl disulfide 10496-16-9, Heptyl disulfide 10496-18-1,
 Decyl disulfide 13373-97-2, 1-Eicosanethiol 13952-84-6, sec-Butylamine
 16900-07-5, Butyl octyl sulfide 16900-08-6, Butyl dodecyl sulfide
 16967-04-7, Butyl hexyl sulfide 17348-59-3, Isopropyl-tert-butyl ether
 18437-89-3, Butyl hexadecyl sulfide 19313-57-6, Butyl decyl sulfide
 19313-61-2, Decyl ethyl sulfide 19484-26-5, 1-Tridecanethiol
 20291-60-5, Hexyl methyl sulfide 20291-61-6, Heptyl methyl sulfide
 22438-39-7, Decyl methyl sulfide 24768-42-1, Butyl pentyl sulfide
 24768-43-2, Hexyl propyl sulfide 24768-44-3, Ethyl heptyl sulfide
 24768-46-5, Heptyl propyl sulfide 25276-70-4, 1-Pentadecanethiol
 26158-99-6, Ethyl pentyl sulfide 27563-68-4, Hexadecyl methyl sulfide
 36653-82-4, 1-Hexadecanol 40289-98-3, Methyl octadecyl sulfide
 40813-84-1, Butyl heptyl sulfide 41947-84-6, Ethyl octadecyl sulfide
 42841-80-5, Pentyl propyl sulfide 53161-72-1, 1,2-Diiodobutane
 53193-22-9, 1-Heptadecanethiol 53193-23-0, 1-Nonadecanethiol
 59973-07-8, Methyl nonyl sulfide 59973-08-9, Ethyl nonyl sulfide
 62103-66-6, Nonyl propyl sulfide 62155-09-3, Methyl tridecyl sulfide
 62155-10-6, Methyl pentadecyl sulfide 62155-11-7, Heptadecyl methyl
 sulfide 62155-12-8, Methyl nonadecyl sulfide 64919-20-6, Ethyl
 pentadecyl sulfide 66271-54-3, Ethyl tetradecyl sulfide 66271-55-4,
 Propyl tridecyl sulfide 66271-81-6, Ethyl tridecyl sulfide 66271-82-7,
 Dodecyl propyl sulfide 66271-83-8, Butyl undecyl sulfide 66292-31-7,
 Ethyl hexadecyl sulfide 66292-32-8, Pentadecyl propyl sulfide
 66292-33-9, Butyl tetradecyl sulfide 66359-40-8, Ethyl heptadecyl
 sulfide 66359-41-9, Hexadecyl propyl sulfide 66359-42-0, Butyl
 pentadecyl sulfide 66455-35-4, Heptadecyl propyl sulfide 66577-30-8,

Ethyl undecyl sulfide 66577-31-9, Decyl propyl sulfide 66577-32-0,
Butyl nonyl sulfide 66577-61-5, Propyl tetradecyl sulfide 66577-62-6,
Butyl tridecyl sulfide 66826-84-4, Propyl undecyl sulfide
RL: PRP (Properties)
(heat capacity of, correlation equation for)

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TI 633 organic chemicals: surface tension data

AU Yaws, Carl L.; Yang, Haur Chung; Pan, Xiang

CS Lamar Univ., Beaumont, TX, USA

SO Chemical Engineering (New York, NY, United States) (1991), 98(3), 140-2,
144, 146, 148, 150

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DT Journal

LA English

CC 66-1 (Surface Chemistry and Colloids)

AB Surface tension data are tabulated for 633 organic chems., including
hydrocarbons, alcs., and acids. Exptl. data from the literature were used
to calculate estimated values for chems. for which no exptl. data exist.

Surface

tensions at any temperature can be calculated using the Othmer relation, which
is discussed.

ST surface tension org chem

IT Surface tension

(of hydrocarbons and sulfides)

IT Organic compounds, properties

RL: PRP (Properties)

(surface tension data for)

IT 56-23-5, Carbon tetrachloride, properties 60-29-7, Ethyl ether,
properties 62-53-3, Aniline, properties 64-17-5, Ethyl alcohol,
properties 64-18-6, Formic acid, properties 64-19-7, Acetic acid,
properties 67-56-1, Methanol, properties 67-63-0, 2-Propanol,
properties 67-64-1, Acetone, properties 67-66-3, Chloroform,
properties 71-23-8, Propyl alcohol, properties 71-36-3, Butyl alcohol,
properties 71-41-0, Pentyl alcohol, properties 71-43-2, Benzene,
properties 74-82-8, Methane, properties 74-84-0, Ethane, properties
74-85-1, Ethene, properties 74-86-2, Acetylene, properties 74-87-3,
Chloromethane, properties 74-88-4, Iodomethane, properties 74-89-5,
Methanamine, properties 74-93-1, Methanethiol, properties 74-96-4,
Bromoethane 74-98-6, Propane, properties 74-99-7, Propyne 75-00-3,
Chloroethane 75-01-4, properties 75-02-5, Fluoroethene 75-03-6,
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properties 75-07-0, Acetaldehyde, properties 75-08-1, Ethanethiol
75-09-2, Dichloromethane, properties 75-11-6, Diiodomethane 75-15-0,
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Cyclopropane 75-21-8, Oxirane, properties 75-26-3, 2-Bromopropane
75-28-5 75-29-6, 2-Chloropropane 75-30-9, 2-Iodopropane 75-33-2,
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Trimethylamine, properties 75-52-5, Nitromethane, properties 75-64-9,
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2-Methyl-2-propanethiol 75-69-4, Trichlorofluoromethane 75-71-8,
Dichlorodifluoromethane 75-72-9, Chlorotrifluoromethane 75-73-0,
Carbon tetrafluoride 75-83-2, 2,2-Dimethylbutane 75-85-4, tert-Pentyl
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1,1,2-Trichloro-1,2,2-trifluoroethane 76-14-2,

1,2-Dichloro-1,1,2,2-tetrafluoroethane 76-15-3 76-16-4,
 Hexafluoroethane 78-75-1, 1,2-Dibromopropane 78-76-2, 2-Bromobutane
 78-78-4, 2-Methylbutane 78-79-5, properties 78-86-4, 2-Chlorobutane
 78-87-5, 1,2-Dichloropropane 78-92-2, sec-Butyl alcohol 78-93-3,
 2-Butanone, properties 79-00-5, 1,1,2-Trichloroethane 79-01-6,
 Trichloroethene, properties 79-24-3, Nitroethane 79-29-8,
 2,3-Dimethylbutane 79-34-5, 1,1,2,2-Tetrachloroethane 79-46-9,
 2-Nitropropane 86-89-5, 1-Pentylnaphthalene 87-85-4 90-12-0,
 1-Methylnaphthalene 91-20-3, Naphthalene, properties 91-57-6,
 2-Methylnaphthalene 92-52-4, Biphenyl, properties 93-22-1,
 2-Pentylnaphthalene 95-47-6, o-Xylene, properties 95-48-7, o-Cresol,
 properties 95-50-1, o-Dichlorobenzene 95-63-6, 1,2,4-Trimethylbenzene
 95-93-2 96-14-0, 3-Methylpentane 96-37-7, Methylcyclopentane
 98-82-8, Cumene 98-83-9, properties 100-41-4, Ethylbenzene, properties
 100-42-5, Styrene, properties 100-47-0, Benzonitrile, properties
 100-80-1, m-Methylstyrene 102-25-0, 1,3,5-Triethylbenzene 103-65-1,
 Propylbenzene 104-51-8, Butylbenzene 104-72-3, 1-Phenyldecane
 105-05-5, p-Diethylbenzene 106-42-3, p-Xylene, properties 106-44-5,
 p-Cresol, properties 106-46-7, p-Dichlorobenzene 106-93-4,
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 1-Butene, properties 106-99-0, 1,3-Butadiene, properties 107-00-6,
 1-Butyne 107-03-9, 1-Propanethiol 107-05-1, 3-Chloro-1-propene
 107-06-2, 1,2-Dichloroethane, properties 107-08-4, 1-Iodopropane
 107-10-8, Propylamine, properties 107-12-0, Propionitrile 107-13-1,
 2-Propenenitrile, properties 107-18-6, Allyl alcohol, properties
 107-21-1, 1,2-Ethanediol, properties 107-83-5, 2-Methylpentane
 107-84-6, 1-Chloro-3-methylbutane 107-87-9, 2-Pentanone 108-03-2,
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 anhydride 108-38-3, m-Xylene, properties 108-39-4, properties
 108-67-8, properties 108-86-1, Bromobenzene, properties 108-87-2,
 Methylcyclohexane 108-88-3, Toluene, properties 108-90-7,
 Chlorobenzene, properties 108-93-0, Cyclohexanol, properties 108-95-2,
 Phenol, properties 108-98-5, Benzenethiol, properties 109-65-9,
 1-Bromobutane 109-66-0, Pentane, properties 109-67-1, 1-Pentene
 109-69-3, 1-Chlorobutane 109-73-9, Butylamine, properties 109-74-0,
 Butanenitrile 109-79-5, 1-Butanethiol 109-89-7, properties 110-01-0,
 Thiacyclopentane 110-02-1, Thiophene 110-53-2, 1-Bromopentane
 110-54-3, Hexane, properties 110-62-3, Valeraldehyde 110-66-7,
 1-Pentanethiol 110-81-6, Ethyl disulfide 110-82-7, Cyclohexane,
 properties 110-83-8, Cyclohexene, properties 110-86-1, Pyridine,
 properties 111-27-3, Hexyl alcohol, properties 111-31-9, 1-Hexanethiol
 111-43-3, Propyl ether 111-47-7, Propyl sulfide 111-65-9, Octane,
 properties 111-66-0, 1-Octene 111-71-7, Heptanal 111-84-2, Nonane
 111-87-5, Octyl alcohol, properties 111-88-6, 1-Octanethiol 112-30-1,
 Decyl-alcohol 112-40-3, Dodecane 112-41-4, 1-Dodecene 112-51-6
 112-55-0, 1-Dodecanethiol 112-88-9, 1-Octadecene 112-95-8, Eicosane
 115-07-1, 1-Propene, properties 115-10-6, Methyl ether 115-11-7,
 properties 115-25-3, Octafluorocyclobutane 121-44-8, properties
 123-01-3, 1-Phenyldodecane 123-02-4, 1-Phenyltridecane 123-38-6,
 Propanal, properties 123-72-8, Butanal 123-75-1, Pyrrolidine,
 properties 123-91-1, p-Dioxane, properties 124-11-8, 1-Nonene
 124-13-0, Octanal 124-18-5, Decane 124-38-9, Carbon dioxide,
 properties 124-40-3, properties 127-18-4, Tetrachloroethene,
 properties 135-01-3, o-Diethylbenzene 141-78-6, Ethyl acetate,
 properties 141-93-5, m-Diethylbenzene 142-28-9, 1,3-Dichloropropane
 142-29-0, Cyclopentene 142-82-5, Heptane, properties 142-96-1, Butyl
 ether 143-08-8, Nonyl alcohol 143-10-2, 1-Decanethiol 151-56-4,
 Aziridine, properties 156-59-2 156-60-5 157-40-4, Spiropentane
 275-51-4, Azulene 287-23-0, Cyclobutane 287-27-4, Thiacyclobutane
 287-92-3, Cyclopentane 291-64-5, Cycloheptane 292-64-8, Cyclooctane
 352-32-9, p-Fluorotoluene 352-93-2, Ethyl sulfide 372-18-9 420-12-2,

Thiacyclopropane 460-12-8, Butadiyne 462-06-6, Fluorobenzene 463-49-0, Allene 463-58-1, Carbonyl sulfide 463-82-1 464-06-2, 2,2,3-Trimethylbutane 488-23-3, 1,2,3,4-Tetramethylbenzene 493-01-6, cis-Decahydronaphthalene 493-02-7, trans-Decahydronaphthalene 503-17-3, 2-Butyne 513-35-9, 2-Methyl-2-butene 513-36-0, 1-Chloro-2-methylpropane 513-44-0, 2-Methyl-1-propanethiol 513-53-1, 2-Butanethiol 526-73-8, 1,2,3-Trimethylbenzene 527-53-7, 1,2,3,5-Tetramethylbenzene 536-74-3, Ethynylbenzene 538-68-1, Pentylbenzene 540-36-3, p-Difluorobenzene 540-54-5, 1-Chloropropane 540-67-0, Ethyl methyl ether 540-84-1 541-73-1, m-Dichlorobenzene

RL: PRP (Properties)

(surface tension data for)

IT 543-59-9, 1-Chloropentane 544-25-2, 1,3,5-Cycloheptatriene 544-40-1, Butyl sulfide 544-76-3, Hexadecane 554-14-3, 2-Methylthiophene 556-56-9, 3-Iodo-1-propene 558-37-2, 3,3-Dimethyl-1-butene 560-21-4, 2,3,3-Trimethylpentane 562-49-2 563-16-6, 3,3-Dimethylhexane 563-45-1, 3-Methyl-1-butene 563-46-2, 2-Methyl-1-butene 563-78-0, 2,3-Dimethyl-1-butene 563-79-1, 2,3-Dimethyl-2-butene 564-02-3, 2,2,3-Trimethylpentane 565-59-3 565-75-3, 2,3,4-Trimethylpentane 571-58-4, 1,4-Dimethylnaphthalene 571-61-9, 1,5-Dimethylnaphthalene 573-98-8, 1,2-Dimethylnaphthalene 575-37-1, 1,7-Dimethylnaphthalene 575-41-7, 1,3-Dimethylnaphthalene 575-43-9, 1,6-Dimethylnaphthalene 581-40-8, 2,3-Dimethylnaphthalene 581-42-0, 2,6-Dimethylnaphthalene 582-16-1, 2,7-Dimethylnaphthalene 583-48-2, 3,4-Dimethylhexane 584-94-1, 2,3-Dimethylhexane 589-34-4, 3-Methylhexane 589-43-5, 2,4-Dimethylhexane 589-53-7, 4-Methylheptane 589-81-1, 3-Methylheptane 590-18-1, cis-2-Butene 590-19-2, 1,2-Butadiene 590-35-2 590-66-9, 1,1-Dimethylcyclohexane 590-73-8, 2,2-Dimethylhexane 591-50-4, Iodobenzene 591-76-4, 2-Methylhexane 591-93-5, 1,4-Pentadiene 591-95-7, 1,2-Pentadiene 591-96-8, 2,3-Pentadiene 592-13-2, 2,5-Dimethylhexane 592-27-8, 2-Methylheptane 592-41-6, 1-Hexene, properties 592-76-7, 1-Heptene 593-45-3, Octadecane 593-60-2, Bromoethylene 594-36-5, 2-Chloro-2-methylbutane 594-82-1, 2,2,3,3-Tetramethylbutane 598-23-2, 3-Methyl-1-butyne 598-25-4, 3-Methyl-1,2-butadiene 600-24-8, 2-Nitrobutane 604-88-6, Hexaethylbenzene 605-01-6, Pentaethylbenzene 609-26-7, 3-Ethyl-2-methylpentane 611-14-3, o-Ethyltoluene 611-15-4, o-Methylstyrene 616-12-6, trans-3-Methyl-2-pentene 616-44-4, 3-Methylthiophene 617-78-7, 3-Ethylpentane 619-99-8, 3-Ethylhexane 620-14-4, m-Ethyltoluene 622-96-8, p-Ethyltoluene 622-97-9, p-Methylstyrene 624-29-3, cis-1,4-Dimethylcyclohexane 624-64-6, trans-2-Butene 624-89-5, Ethyl methyl sulfide 624-92-0, Methyl disulfide 625-27-4, 2-Methyl-2-pentene 625-58-1, Ethyl nitrate 625-80-9, Isopropyl sulfide 627-05-4, 1-Nitrobutane 627-13-4, Propyl nitrate 627-19-0, 1-Pentyne 627-20-3, cis-2-Pentene 627-21-4, 2-Pentyne 628-29-5, Butyl methyl sulfide 628-71-7, 1-Heptyne 629-05-0, 1-Octyne 629-20-9, 1,3,5,7-Cyclooctatetraene 629-45-8, Butyl disulfide 629-50-5, Tridecane 629-59-4, Tetradecane 629-62-9, Pentadecane 629-65-2, Heptyl sulfide 629-73-2, 1-Hexadecene 629-74-3, 1-Hexanadecyne 629-78-7, Heptadecane 629-89-0, 1-Octadecyne 629-92-5, Nonadecane 630-08-0, Carbon monoxide, properties 635-81-4, 1,2,4,5-Tetraethylbenzene 638-04-0, cis-1,3-Dimethylcyclohexane 638-46-0, Butyl ethyl sulfide 642-32-0, 1,2,3,4-Tetraethylbenzene 646-04-8, trans-2-Pentene 674-76-0, trans-4-Methyl-2-pentene 689-97-4, 1-Buten-3-yne 691-37-2 691-38-3, cis-4-Methyl-2-pentene 693-02-7, 1-Hexyne 693-83-4, Decyl sulfide 693-89-0, 1-Methylcyclopentene 700-12-9, Pentamethylbenzene 760-20-3, 3-Methyl-1-pentene 760-21-4, 2-Ethyl-1-butene 763-29-1, 2-Methyl-1-pentene 764-93-2, 1-Decyne 765-03-7, 1-Dodecyne 765-10-6, 1-Tetradecyne 765-13-9, 1-Pentadecyne 765-27-5, 1-Eicosyne 766-90-5, cis-Propenylbenzene 821-95-4, 1-Undecene 822-27-5, Octyl disulfide 822-35-5, Cyclobutene 822-50-4, trans-1,2-Dimethylcyclopentane 871-83-0, 2-Methylnonane 872-05-9,

1-Decene 872-10-6, Pentyl sulfide 873-66-5, trans-Propenylbenzene
 877-44-1, 1,2,4-Triethylbenzene 921-47-1, 2,3,4-Trimethylhexane
 922-28-1, 3,4-Dimethylheptane 922-62-3, cis-3-Methyl-2-pentene
 926-82-9, 3,5-Dimethylheptane 929-98-6, Nonyl sulfide 939-27-5,
 2-Ethyl naphthalene 1067-08-9, 3-Ethyl-3-methylpentane 1067-20-5,
 3,3-Diethylpentane 1068-19-5, 4,4-Dimethylheptane 1068-87-7,
 3-Ethyl-2,4-dimethylpentane 1069-53-0, 2,3,5-Trimethylhexane
 1070-87-7, 2,2,4,4-Tetramethylpentane 1071-26-7, 2,2-Dimethylheptane
 1071-81-4, 2,2,5,5-Tetramethylhexane 1072-05-5, 2,6-Dimethylheptane
 1072-16-8, 2,7-Dimethyloctane 1077-16-3, Hexylbenzene 1078-71-3,
 1-Phenylheptane 1081-77-2, 1-Phenylnonane 1120-21-4, Undecane
 1120-36-1, 1-Tetradecene 1120-62-3, 3-Methylcyclopentene 1127-76-0,
 1-Ethyl naphthalene 1134-62-9, 2-Butyl naphthalene 1186-53-4,
 2,2,3,4-Tetramethylpentane 1189-99-7, 2,5,5-Trimethylheptane
 1190-83-6, 2,2,6-Trimethylheptane 1192-18-3,
 cis-1,2-Dimethylcyclopentane 1455-21-6, 1-Nonanethiol 1459-09-2,
 1-Phenylhexadecane 1459-10-5, 1-Phenyltetradecane 1551-21-9, Isopropyl
 methyl sulfide 1574-41-0, cis-1,3-Pentadiene 1613-46-3, Butyl propyl
 sulfide 1613-51-0, Thiacyclohexane 1634-09-9, 1-Butyl naphthalene
 1638-26-2, 1,1-Dimethylcyclopentane 1639-09-4, 1-Heptanethiol
 1640-89-7, Ethylcyclopentane 1678-91-7, Ethylcyclohexane 1678-92-8,
 Propylcyclohexane 1678-93-9, Butylcyclohexane 1679-07-8,
 Cyclopentanethiol 1679-09-0, 2-Methyl-2-butanethiol 1741-83-9, Methyl
 pentyl sulfide 1759-58-6, trans-1,3-Dimethylcyclopentane 1759-81-5,
 4-Methylcyclopentene 1795-15-9, 1-Cyclohexyloctane 1795-16-0,
 1-Cyclohexyldecane 1795-17-1, 1-Cyclohexyldodecane 1795-18-2,
 1-Cyclohexyltetradecane 1795-20-6, 1-Cyclopentyloctane 1795-21-7,
 1-Cyclopentyldecane 1795-22-8, 1-Cyclopentyltetradecane 1795-26-2
 1795-27-3 2004-70-8, trans-1,3-Pentadiene 2027-19-2,
 2-Propyl naphthalene 2040-95-1, Butylcyclopentane 2040-96-2,
 Propylcyclopentane 2051-30-1, 2,6-Dimethyloctane 2074-87-5, Cyanogen
 2079-95-0, 1-Tetradecanethiol 2131-18-2, 1-Phenylpentadecane
 2189-60-8, 1-Phenyloctane 2207-01-4, cis-1,2-Dimethylcyclohexane
 2207-03-6, trans-1,3-Dimethylcyclohexane 2207-04-7,
 trans-1,4-Dimethylcyclohexane 2213-23-2, 2,4-Dimethylheptane
 2216-30-0, 2,5-Dimethylheptane 2216-32-2, 4-Ethylheptane 2216-33-3,
 3-Methyloctane 2216-34-4, 4-Methyloctane 2243-98-3, 1-Undecyne
 2437-56-1, 1-Tridecene 2532-58-3, cis-1,3-Dimethylcyclopentane
 2613-61-8, 2,4,6-Trimethylheptane 2690-08-6, Octyl sulfide 2765-18-6,
 1-Propyl naphthalene 2851-83-4, Dodecyl ethyl sulfide 2882-98-6,
 1-Cyclopentylnonane 2883-02-5, 1-Cyclohexylnonane 2885-00-9,
 1-Octadecanethiol 2917-26-2, 1-Hexadecanethiol 3074-71-3,
 2,3-Dimethylheptane 3074-75-7, 4-Ethyl-2-methylhexane 3074-76-8,
 3-Ethyl-3-methylhexane 3074-77-9, 3-Ethyl-4-methylhexane 3178-29-8,
 4-Propylheptane 3221-61-2, 2-Methyloctane 3452-07-1, 1-Eicosene
 3452-09-3, 1-Nonyne 3522-94-9, 2,2,5-Trimethylhexane 3698-89-3,
 Dodecyl methyl sulfide 3698-93-9, Octyl propyl sulfide 3698-94-0,
 Ethyl octyl sulfide 3698-95-1, Methyl octyl sulfide 3741-00-2,
 1-Cyclopentylpentane 3877-15-4, Methyl propyl sulfide 4032-86-4,
 3,3-Dimethylheptane 4032-92-2, 2,4,4-Trimethylheptane 4032-93-3,
 2,3,6-Trimethylheptane 4032-94-4, 2,4-Dimethyloctane 4050-45-7,
 trans-2-Hexene 4110-44-5, 3,3-Dimethyloctane 4110-50-3, Ethyl propyl
 sulfide 4292-92-6, Pentylcyclohexane 4457-00-5, 1-Cyclopentylhexane
 4485-77-2, Nonyl disulfide 4669-01-6, 1-Cyclopentylpentadecane
 4753-80-4, Thiacycloheptane 5171-84-6, 3,3,4,4-Tetramethylhexane
 5332-52-5, 1-Undecanethiol 5617-41-4, 1-Cyclohexylheptane 5617-42-5,
 1-Cyclopentylheptane 5634-30-0, 1-Cyclopentyl dodecane
 RL: PRP (Properties)

(surface tension data for)

IT 5881-17-4, 3-Ethyl octane 5911-04-6, 3-Methylnonane 6006-33-3,
 1-Cyclohexyltridecane 6006-34-4, 1-Cyclopentyltridecane 6006-95-7,
 1-Cyclohexylpentadecane 6294-31-1, Hexyl sulfide 6742-54-7,

1-Phenylundecane 6765-39-5, 1-Heptadecene 6785-23-5,
 1-Cyclopentylundecane 6812-38-0, 1-Cyclohexylhexadecane 6812-39-1,
 1-Cyclopentylhexadecane 6876-18-2, 3-Isopropyl-2-methylhexane
 6876-23-9, trans-1,2-Dimethylcyclohexane 7146-60-3, 2,3-Dimethyloctane
 7154-79-2, 2,2,3,3-Tetramethylpentane 7154-80-5, 3,3,5-Trimethylheptane
 7220-26-0, 3-Ethyl-2,4-dimethylhexane 7289-44-3, Methyl undecyl sulfide
 7289-45-4, Methyl tetradecyl sulfide 7309-44-6, Ethyl hexyl sulfide
 7372-86-3, 2-Ethyl-6-methylnaphthalene 7642-09-3, cis-3-Hexene
 7688-21-3, cis-2-Hexene 10496-15-8, Hexyl disulfide 10496-16-9, Heptyl
 disulfide 13269-52-8, trans-3-Hexene 13360-61-7, 1-Pentadecene
 13373-97-2, 1-Eicosanethiol 13475-78-0, 5-Ethyl-2-methylheptane
 13475-79-1 13475-81-5, 2,2,3,3-Tetramethylhexane 13952-84-6,
 sec-Butylamine 14676-29-0, 3-Ethyl-2-methylheptane 14720-74-2,
 2,2,4-Trimethylheptane 15869-80-4, 3-Ethylheptane 15869-85-9,
 5-Methylnonane 15869-86-0, 4-Ethylloctane 15869-87-1,
 2,2-Dimethyloctane 15869-89-3, 2,5-Dimethyloctane 15869-92-8,
 3,4-Dimethyloctane 15869-93-9, 3,5-Dimethyloctane 15869-94-0,
 3,6-Dimethyloctane 15869-95-1, 4,4-Dimethyloctane 15869-96-2,
 4,5-Dimethyloctane 16747-25-4, 2,2,3-Trimethylhexane 16747-26-5,
 2,2,4-Trimethylhexane 16747-28-7, 2,3,3-Trimethylhexane 16747-30-1,
 2,4,4-Trimethylhexane 16747-31-2, 3,3,4-Trimethylhexane 16747-32-3,
 3-Ethyl-2,2-dimethylpentane 16747-33-4, 3-Ethyl-2,3-dimethylpentane
 16747-38-9, 2,3,3,4-Tetramethylpentane 16747-42-5,
 2,2,4,5-Tetramethylhexane 16747-44-7, 2,2,3,3,4-Pentamethylpentane
 16747-45-8, 2,2,3,4,4-Pentamethylpentane 16789-46-1,
 3-Ethyl-2-methylhexane 16900-07-5, Butyl octyl sulfide 16900-08-6,
 Butyl dodecyl sulfide 16967-04-7, Butyl hexyl sulfide 17059-55-1,
 2-Ethyl-7-methylnaphthalene 17301-94-9, 4-Methylnonane 17302-01-1,
 3-Ethyl-3-methylheptane 17302-02-2, 3,3-Diethylhexane 17302-04-4,
 4-Ethyl-4-methylheptane 18435-45-5, 1-Nonadecene 18437-89-3, Butyl
 hexadecyl sulfide 19313-57-6, Butyl decyl sulfide 19313-61-2, Decyl
 ethyl sulfide 19398-77-7, 3,4-Diethylhexane 19484-26-5,
 1-Tridecanethiol 20278-84-6, 2,4,5-Trimethylheptane 20278-85-7,
 2,3,5-Trimethylheptane 20278-87-9, 3,3,4-Trimethylheptane 20278-88-0,
 3,4,4-Trimethylheptane 20278-89-1, 3,4,5-Trimethylheptane 20291-60-5,
 Hexyl methyl sulfide 20291-61-6, Heptyl methyl sulfide 20291-91-2,
 3-Ethyl-2,2-dimethylhexane 20291-95-6, 2,2,5-Trimethylheptane
 22438-39-7, Decyl methyl sulfide 24768-42-1, Butyl pentyl sulfide
 24768-43-2, Hexyl propyl sulfide 24768-44-3, Ethyl heptyl sulfide
 24768-46-5, Heptyl propyl sulfide 25276-70-4, 1-Pentadecanethiol
 26158-99-6, Ethyl pentyl sulfide 26186-00-5, 1-Heptadecyne 26186-01-6,
 1-Nonadecyne 26186-02-7, 1-Tridecyne 27563-68-4, Hexadecyl methyl
 sulfide 31032-94-7, 2-Ethyl-3-methylnaphthalene 38842-05-6,
 1,2,3,5-Tetraethylbenzene 40289-98-3, Methyl octadecyl sulfide
 40813-84-1, Butyl heptyl sulfide 41947-84-6, Ethyl octadecyl sulfide
 42205-08-3, 1,2,3-Triethylbenzene 42841-80-5, Pentyl propyl sulfide
 51750-65-3, 2,2,4,4-Tetramethylhexane 52896-87-4, 4-Isopropylheptane
 52896-88-5, 4-Ethyl-2-methylheptane 52896-89-6, 4-Ethyl-3-methylheptane
 52896-90-9, 3-Ethyl-5-methylheptane 52896-91-0, 3-Ethyl-4-methylheptane
 52896-92-1, 2,2,3-Trimethylheptane 52896-93-2, 2,3,3-Trimethylheptane
 52896-95-4, 2,3,4-Trimethylheptane 52896-99-8,
 4-Ethyl-2,2-dimethylhexane 52897-00-4, 3-Ethyl-2,3-dimethylhexane
 52897-01-5, 4-Ethyl-2,3-dimethylhexane 52897-03-7,
 4-Ethyl-2,4-dimethylhexane 52897-04-8, 3-Ethyl-2,5-dimethylhexane
 52897-05-9, 4-Ethyl-3,3-dimethylhexane 52897-06-0,
 3-Ethyl-3,4-dimethylhexane 52897-08-2, 2,2,3,4-Tetramethylhexane
 52897-09-3, 2,2,3,5-Tetramethylhexane 52897-10-6,
 2,3,3,4-Tetramethylhexane 52897-11-7, 2,3,3,5-Tetramethylhexane
 52897-12-8, 2,3,4,4-Tetramethylhexane 52897-15-1,
 2,3,4,5-Tetramethylhexane 52897-16-2, 3,3-Diethyl-2-methylpentane
 52897-17-3, 3-Ethyl-2,2,3-trimethylpentane 52897-18-4,
 3-Ethyl-2,2,4-trimethylpentane 52897-19-5,

3-Ethyl-2,3,4-trimethylpentane 53193-22-9, 1-Heptadecanethiol
 53193-23-0, 1-Nonadecanethiol 54105-66-7, 1-Cyclohexylundecane
 59973-07-8, Methyl nonyl sulfide 59973-08-9, Ethyl nonyl sulfide
 62103-66-6, Nonyl propyl sulfide 62155-09-3, Methyl tridecyl sulfide
 62155-10-6, Methyl pentadecyl sulfide 62155-11-7, Heptadecyl methyl
 sulfide 62155-12-8, Methyl nonadecyl sulfide 64919-20-6, Ethyl
 pentadecyl sulfide 66271-54-3, Ethyl tetradecyl sulfide 66271-55-4,
 Propyl tridecyl sulfide 66271-81-6, Ethyl tridecyl sulfide 66271-82-7,
 Dodecyl propyl sulfide 66271-83-8, Butyl undecyl sulfide 66292-31-7,
 Ethyl hexadecyl sulfide 66292-32-8, Pentadecyl propyl sulfide
 66292-33-9, Butyl tetradecyl sulfide 66359-40-8, Ethyl heptadecyl
 sulfide 66359-41-9, Hexadecyl propyl sulfide 66359-42-0, Butyl
 pentadecyl sulfide 66455-35-4, Heptadecyl propyl sulfide 66577-30-8,
 Ethyl undecyl sulfide 66577-31-9, Decyl propyl sulfide 66577-32-0,
 Butyl nonyl sulfide 66577-61-5, Propyl tetradecyl sulfide 66577-62-6,
 Butyl tridecyl sulfide 66826-84-4, Propyl undecyl sulfide
 RL: PRP (Properties)
 (surface tension data for)

L23 ANSWER 4 OF 10 CAPLUS COPYRIGHT 2009 ACS on STN
 AN 1990:485738 CAPLUS
 DN 113:85738
 OREF 113:14355a,14358a
 ED Entered STN: 01 Sep 1990
 TI Predict enthalpy of vaporization
 AU Yaws, C. L.; Yang, H. C.; Cawley, W. A.
 CS Lamar Univ., Beaumont, TX, USA
 SO Hydrocarbon Processing, International Edition (1990), 69(6), 87-90
 CODEN: IHPRBS; ISSN: 0018-8190
 DT Journal
 LA English
 CC 69-2 (Thermodynamics, Thermochemistry, and Thermal Properties)
 AB The enthalpy of vaporization at a given temperature is related to other
 properties for the major organic compds.
 ST enthalpy vaporization org compd
 IT Heat of evaporation and Heat of condensation
 (calcn. of, of organic compds.)
 IT Organic compounds, properties
 RL: PRP (Properties)
 (heats of evaporation of, calcn. of)
 IT 50-00-0, Formaldehyde, properties 56-23-5, Carbon tetrachloride,
 properties 60-29-7, Ethyl ether, properties 62-53-3, Benzenamine,
 properties 64-17-5, Ethanol, properties 64-18-6, Formic acid,
 properties 64-19-7, Acetic acid, properties 65-85-0, Benzoic acid,
 properties 66-25-1, Hexanal 67-56-1, Methanol, properties 67-63-0,
 2-Propanol, properties 67-64-1, 2-Propanone, properties 67-66-3,
 properties 67-72-1, Hexachloroethane 71-23-8, Propyl alcohol,
 properties 71-36-3, 1-Butanol, properties 71-41-0, Pentyl alcohol,
 properties 71-43-2, Benzene, properties 74-82-8, Methane, properties
 74-83-9, properties 74-84-0, Ethane, properties 74-85-1, Ethene,
 properties 74-86-2, Ethyne, properties 74-87-3, properties 74-88-4,
 properties 74-89-5, Methanamine, properties 74-93-1, Methanethiol,
 properties 74-96-4, Bromoethane 74-98-6, Propane, properties
 74-99-7, 1-Propyne 75-00-3, Chloroethane 75-01-4, properties
 75-02-5, Fluoroethene 75-03-6, Iodoethane 75-04-7, Ethanamine,
 properties 75-05-8, Acetonitrile, properties 75-07-0, Acetaldehyde,
 properties 75-08-1, Ethanethiol 75-09-2, properties 75-10-5,
 Difluoromethane 75-15-0, Carbon disulfide, properties 75-18-3, Methyl
 sulfide 75-19-4, Cyclopropane 75-21-8, Oxirane, properties 75-26-3
 75-28-5, 2-Methylpropane 75-29-6, 2-Chloropropane 75-30-9,
 2-Iodopropane 75-33-2, 2-Propanethiol 75-34-3, 1,1-Dichloroethane
 75-35-4, properties 75-36-5, Acetyl chloride 75-37-6,

1,1-Difluoroethane 75-38-7 75-43-4, Dichlorofluoromethane 75-45-6,
 Chlorodifluoromethane 75-46-7, Trifluoromethane 75-47-8,
 Triiodomethane 75-50-3, properties 75-52-5, Nitromethane, properties
 75-56-9, properties 75-64-9, tert-Butylamine, properties 75-65-0,
 properties 75-66-1, 2-Methyl-2-propanethiol 75-69-4,
 Trichlorofluoromethane 75-72-9, Chlorotrifluoromethane 75-73-0, Carbon
 tetrafluoride 75-83-2 75-85-4, tert-Pentyl alcohol 76-01-7,
 Pentachloroethane 76-13-1 76-14-2, 1,2-Dichlorotetrafluoroethane
 76-15-3 76-16-4, Hexafluoroethane 78-75-1, 1,2-Dibromopropane
 78-76-2, 2-Bromobutane 78-78-4 78-79-5, properties 78-82-0,
 Isobutyronitrile 78-86-4, 2-Chlorobutane 78-87-5, 1,2-Dichloropropane
 78-92-2, sec-Butyl alcohol 78-93-3, 2-Butanone, properties 79-00-5,
 1,1,2-Trichloroethane 79-01-6, Trichloroethene, properties 79-10-7,
 2-Propenoic acid, properties 79-24-3 79-29-8 79-34-5,
 1,1,2,2-Tetrachloroethane 79-46-9, 2-Nitropropane 86-89-5,
 1-Pentylnaphthalene 87-85-4, Hexamethylbenzene 90-12-0,
 1-Methylnaphthalene 91-20-3, Naphthalene, properties 91-57-6,
 2-Methylnaphthalene 92-52-4, 1,1'-Biphenyl, properties 93-22-1,
 2-Pentylnaphthalene 95-47-6, properties 95-48-7, properties 95-50-1,
 o-Dichlorobenzene 95-63-6, 1,2,4-Trimethylbenzene 95-93-2,
 1,2,4,5-Tetramethylbenzene 96-14-0, 3-Methylpentane 96-18-4 96-37-7,
 Methylcyclopentane 98-08-8 98-82-8 98-83-9, properties 100-41-4,
 Ethylbenzene, properties 100-42-5, properties 100-47-0, Benzonitrile,
 properties 100-80-1, m-Methylstyrene 102-25-0, 1,3,5-Triethylbenzene
 103-65-1, Propylbenzene 104-51-8, Butylbenzene 104-72-3,
 1-Phenyldecane 105-05-5, p-Diethylbenzene 106-42-3, p-Xylene,
 properties 106-44-5, properties 106-46-7 106-93-4, 1,2-Dibromoethane
 106-94-5, 1-Bromopropane 106-95-6, 3-Bromo-1-propene, properties
 106-97-8, Butane, properties 106-98-9, 1-Butene, properties 106-99-0,
 1,3-Butadiene, properties 107-00-6, 1-Butyne 107-03-9, 1-Propanethiol
 107-05-1 107-06-2, properties 107-08-4, 1-Iodopropane 107-10-8,
 Propylamine, properties 107-12-0, Propionitrile 107-13-1,
 2-Propenenitrile, properties 107-18-6, 2-Propen-1-ol, properties
 107-21-1, 1,2-Ethanediol, properties 107-31-3 107-83-5,
 2-Methylpentane 107-84-6, 1-Chloro-3-methylbutane 107-87-9,
 2-Pentanone 108-03-2, 1-Nitropropane 108-08-7, 2,4-Dimethylpentane
 108-20-3, Isopropyl ether 108-24-7 108-38-3, m-Xylene, properties
 108-39-4, properties 108-67-8, Mesitylene, properties 108-86-1,
 Bromobenzene, properties 108-87-2, Methylcyclohexane 108-88-3,
 properties 108-90-7, properties 108-93-0, Cyclohexanol, properties
 108-94-1, Cyclohexanone, properties 108-95-2, Phenol, properties
 108-98-5, Benzenethiol, properties 108-99-6, 3-Picoline 109-06-8,
 2-Picoline 109-65-9, 1-Bromobutane 109-66-0, Pentane, properties
 109-67-1, 1-Pentene 109-69-3 109-73-9, 1-Butanamine, properties
 109-74-0, Butyronitrile 109-79-5, 1-Butanethiol 109-89-7, properties
 110-00-9, Furan 110-01-0, Thiacyclopentane 110-02-1, Thiophene
 110-53-2, 1-Bromopentane 110-54-3, Hexane, properties 110-62-3,
 Pentanal 110-66-7, 1-Pentanethiol 110-81-6, Ethyl disulfide
 110-82-7, Cyclohexane, properties 110-83-8, Cyclohexene, properties
 110-86-1, Pyridine, properties 111-27-3, Hexyl alcohol, properties
 111-31-9, 1-Hexanethiol 111-43-3, Propyl ether 111-47-7, Propyl
 sulfide 111-65-9, Octane, properties 111-66-0, 1-Octene 111-70-6,
 Heptyl alcohol 111-71-7, Heptanal 111-84-2, Nonane 111-87-5,
 1-Octanol, properties 111-88-6, 1-Octanethiol 112-30-1, Decyl alcohol
 112-31-2, Decanal 112-40-3, Dodecane 112-41-4, 1-Dodecene 112-42-5,
 Undecyl alcohol 112-51-6, Pentyl disulfide 112-53-8, 1-Dodecanol
 112-55-0, 1-Dodecanethiol 112-70-9, 1-Tridecanol 112-72-1,
 1-Tetradecanol 112-88-9, 1-Octadecene 112-92-5, 1-Octadecanol
 112-95-8, Eicosane 115-07-1, 1-Propene, properties 115-10-6, Methyl
 ether 115-25-3, Octafluorocyclobutane 116-14-3, properties 118-74-1,
 Hexachlorobenzene 121-44-8, properties 123-01-3 123-02-4 123-38-6,
 Propanal, properties 123-72-8, Butanal 123-75-1, Pyrrolidine,

properties 123-91-1, p-Dioxane, properties 124-11-8, 1-Nonene
 124-13-0, Octanal 124-18-5, Decane 124-19-6, Nonanal 124-38-9,
 Carbon dioxide, properties 124-40-3, properties 127-18-4,
 Tetrachloroethene, properties 135-01-3, o-Diethylbenzene 141-78-6,
 Acetic acid ethyl ester, properties 141-93-5, m-Diethylbenzene
 142-28-9, 1,3-Dichloropropane 142-29-0, Cyclopentene 142-82-5,
 Heptane, properties 142-96-1, Butyl ether 143-08-8, 1-Nonanol
 143-10-2, 1-Decanethiol 151-56-4, Aziridine, properties 156-59-2,
 cis-1,2-Dichloroethene 156-60-5, trans-1,2-Dichloroethene 157-40-4,
 Spiropentane 275-51-4, Azulene 287-23-0, Cyclobutane 287-27-4,
 Thiacyclobutane 287-92-3, Cyclopentane 291-64-5, Cycloheptane
 RL: PEP (Physical, engineering or chemical process); PRP (Properties);
 PROC (Process)

(b.p. and critical temperature and f.p. and heat of evaporation of)
 IT 292-64-8, Cyclooctane 352-32-9, p-Fluorotoluene 352-93-2, Ethylsulfide
 353-36-6, Fluoroethane 359-11-5, Trifluoroethene 367-11-3,
 o-Difluorobenzene 372-18-9, m-Difluorobenzene 392-56-3,
 Hexafluorobenzene 420-12-2, Thiirane 420-26-8, 2-Fluoropropane
 420-46-2, 1,1,1-Trifluoroethane 460-12-8, 1,3-Butadiyne 460-13-9,
 1-Fluoropropane 460-19-5, Cyanogen 462-06-6, Fluorobenzene 463-49-0,
 1,2-Propadiene 463-51-4, Ketene 463-58-1, Carbonyl sulfide 463-82-1,
 2,2-Dimethylpropane 464-06-2, 2,2,3-Trimethylbutane 488-23-3,
 1,2,3,4-Tetramethylbenzene 493-01-6 493-02-7 503-17-3, 2-Butyne
 507-09-5, Thioacetic acid, properties 507-19-7, 2-Bromo-2-methylpropane
 507-20-0 513-35-9 513-36-0, 1-Chloro-2-methylpropane 513-44-0,
 2-Methyl-1-propanethiol 513-53-1, 2-Butanethiol 526-73-8,
 1,2,3-Trimethylbenzene 527-53-7, 1,2,3,5-Tetramethylbenzene 533-98-2,
 1,2-Dibromobutane 536-74-3, Ethynylbenzene 538-68-1, Pentylbenzene
 540-36-3, p-Difluorobenzene 540-54-5 540-67-0, Ethyl methyl ether
 540-84-1, 2,2,4-Trimethylpentane 541-73-1, m-Dichlorobenzene 543-59-9,
 1-Chloropentane 544-25-2, 1,3,5-Cycloheptatriene 544-40-1, Butyl
 sulfide 544-76-3, Hexadecane 554-14-3, 2-Methylthiophene 556-56-9,
 3-Iodo-1-propene 557-17-5, Methyl propyl ether 558-17-8,
 2-Iodo-2-methylpropane 558-37-2 560-21-4, 2,3,3-Trimethylpentane
 562-49-2, 3,3-Dimethylpentane 563-16-6, 3,3-Dimethylhexane 563-45-1,
 3-Methyl-1-butene 563-46-2 563-78-0, 2,3-Dimethyl-1-butene 563-79-1
 564-02-3, 2,2,3-Trimethylpentane 565-59-3, 2,3-Dimethylpentane
 565-75-3, 2,3,4-Trimethylpentane 571-58-4, 1,4-Dimethylnaphthalene
 571-61-9, 1,5-Dimethylnaphthalene 573-98-8, 1,2-Dimethylnaphthalene
 575-37-1, 1,7-Dimethylnaphthalene 575-41-7, 1,3-Dimethylnaphthalene
 575-43-9, 1,6-Dimethylnaphthalene 581-40-8, 2,3-Dimethylnaphthalene
 581-42-0, 2,6-Dimethylnaphthalene 582-16-1, 2,7-Dimethylnaphthalene
 583-48-2, 3,4-Dimethylhexane 584-94-1, 2,3-Dimethylhexane 589-34-4,
 3-Methylhexane 589-43-5, 2,4-Dimethylhexane 589-53-7, 4-Methylheptane
 589-81-1, 3-Methylheptane 590-18-1 590-19-2, 1,2-Butadiene 590-35-2,
 2,2-Dimethylpentane 590-66-9, 1,1-Dimethylcyclohexane 590-73-8,
 2,2-Dimethylhexane 591-50-4, Iodobenzene 591-76-4, 2-Methylhexane
 591-93-5, 1,4-Pentadiene 591-95-7, 1,2-Pentadiene 591-96-8,
 2,3-Pentadiene 592-13-2, 2,5-Dimethylhexane 592-27-8, 2-Methylheptane
 592-41-6, 1-Hexene, properties 592-76-7, 1-Heptene 593-45-3,
 Octadecane 593-53-3, Fluoromethane 593-60-2, Bromoethylene 593-70-4,
 Chlorofluoromethane 594-20-7, 2,2-Dichloropropane 594-36-5,
 2-Chloro-2-methylbutane 594-51-4, 2,3-Dibromo-2-methylbutane 594-82-1,
 2,2,3,3-Tetramethylbutane 598-23-2, 3-Methyl-1-butyne 598-25-4,
 3-Methyl-1,2-butadiene 598-29-8, 1,2-Diiodopropane 598-53-8, Methyl
 isopropyl ether 598-58-3, Methyl nitrate 600-24-8, 2-Nitrobutane
 604-88-6, Hexaethylbenzene 605-01-6, Pentaethylbenzene 609-26-7,
 3-Ethyl-2-methylpentane 611-14-3, o-Ethyltoluene 611-15-4 616-12-6
 616-44-4, 3-Methylthiophene 617-78-7, 3-Ethylpentane 619-99-8,
 3-Ethylhexane 620-14-4, m-Ethyltoluene 622-96-8, p-Ethyltoluene
 622-97-9 624-29-3 624-64-6 624-73-7, 1,2-Diiodoethane 624-89-5,
 Ethyl methyl sulfide 624-91-9, Methyl nitrite 624-92-0, Methyl

disulfide 625-27-4, 2-Methyl-2-pentene 625-58-1, Ethyl nitrate
 625-80-9, Isopropyl sulfide 627-05-4, 1-Nitrobutane 627-13-4, Propyl
 nitrate 627-19-0, 1-Pentyne 627-20-3 627-21-4, 2-Pentyne 628-29-5,
 Butyl methyl sulfide 628-71-7, 1-Heptyne 629-05-0, 1-Octyne
 629-19-6, Propyl disulfide 629-20-9, 1,3,5,7-Cyclooctatetraene
 629-45-8, Butyl disulfide 629-50-5, Tridecane 629-59-4, Tetradecane
 629-62-9, Pentadecane 629-65-2, Heptyl sulfide 629-73-2, 1-Hexadecene
 629-74-3, 1-Hexadecyne 629-76-5, 1-Pentadecanol 629-78-7, Heptadecane
 629-89-0, 1-Octadecyne 629-92-5, Nonadecane 629-96-9, 1-Eicosanol
 630-08-0, Carbon monoxide, properties 635-81-4,
 1,2,4,5-Tetraethylbenzene 638-04-0 638-46-0, Butyl ethyl sulfide
 646-04-8 674-76-0 689-97-4, 1-Buten-3-yne 691-37-2,
 4-Methyl-1-pentene 691-38-3 693-02-7, 1-Hexyne 693-83-4, Decyl
 sulfide 693-89-0, 1-Methylcyclopentene 700-12-9 760-20-3,
 3-Methyl-1-pentene 760-21-4, 2-Ethyl-1-butene 763-29-1,
 2-Methyl-1-pentene 764-93-2, 1-Decyne 765-03-7, 1-Dodecyne 765-10-6,
 1-Tetradecyne 765-13-9, 1-Pentadecyne 765-27-5, 1-Eicosyne 766-90-5
 821-95-4, 1-Undecene 822-27-5, Octyl disulfide 822-35-5, Cyclobutene
 822-50-4 871-83-0, 2-Methylnonane 872-05-9, 1-Decene 872-10-6,
 Pentyl sulfide 873-66-5 877-44-1, 1,2,4-Triethylbenzene 921-47-1,
 2,3,4-Trimethylhexane 922-28-1, 3,4-Dimethylheptane 922-62-3
 926-82-9, 3,5-Dimethylheptane 929-98-6, Nonyl sulfide 939-27-5,
 2-Ethyl-naphthalene 1067-08-9, 3-Ethyl-3-methylpentane 1067-20-5,
 3,3-Diethylpentane 1068-19-5, 4,4-Dimethylheptane 1068-87-7,
 3-Ethyl-2,4-dimethylpentane 1069-53-0, 2,3,5-Trimethylhexane
 1070-87-7, 2,2,4,4-Tetramethylpentane 1071-26-7, 2,2-Dimethylheptane
 1071-81-4, 2,2,5,5-Tetramethylhexane 1072-05-5, 2,6-Dimethylheptane
 1072-16-8, 2,7-Dimethyloctane 1077-16-3, Hexylbenzene 1078-71-3,
 1-Phenylheptane 1081-77-2 1120-21-4, Undecane 1120-36-1,
 1-Tetradecene 1120-62-3, 3-Methylcyclopentene 1127-76-0,
 1-Ethyl-naphthalene 1134-62-9, 2-Butyl-naphthalene 1186-53-4,
 2,2,3,4-Tetramethylpentane 1189-99-7, 2,5,5-Trimethylheptane
 1190-83-6, 2,2,6-Trimethylheptane 1192-18-3 1454-84-8, 1-Nonadecanol
 1454-85-9, 1-Heptadecanol 1455-21-6, 1-Nonanethiol 1459-09-2,
 1-Phenylhexadecane 1459-10-5, 1-Phenyltetradecane 1551-21-9, Isopropyl
 methyl sulfide 1574-41-0 1613-46-3, Butyl propyl sulfide 1613-51-0,
 Thiacyclohexane 1630-77-9, cis-1,2-Difluoroethene 1630-78-0,
 trans-1,2-Difluoroethene 1634-04-4, Methyl tert-butyl ether 1634-09-9,
 1-Butyl-naphthalene 1638-26-2, 1,1-Dimethylcyclopentane 1639-09-4,
 1-Heptanethiol 1640-89-7, Ethylcyclopentane 1678-92-8,
 Propylcyclohexane 1678-93-9, Butylcyclohexane 1679-07-8,
 Cyclopentanethiol 1679-09-0, 2-Methyl-2-butanethiol 1712-64-7,
 Isopropyl nitrate 1741-83-9, Methyl pentyl sulfide 1759-58-6
 1759-81-5, 4-Methylcyclopentene 1795-15-9, 1-Cyclohexyloctane
 1795-16-0, 1-Cyclohexyldecane 1795-17-1, 1-Cyclohexyldodecane
 1795-18-2, 1-Cyclohexyltetradecane 1795-20-6 1795-21-7,
 1-Cyclopentyldecane 1795-22-8, 1-Cyclopentyltetradecane 1795-26-2
 RL: PEP (Physical, engineering or chemical process); PRP (Properties);
 PROC (Process)

(b.p. and critical temperature and f.p. and heat of evaporation of)
 IT 1795-27-3 2004-70-8 2027-19-2, 2-Propylnaphthalene 2040-95-1,
 Butylcyclopentane 2040-96-2, Propylcyclopentane 2051-30-1,
 2,6-Dimethyloctane 2079-95-0, 1-Tetradecanethiol 2131-18-2,
 1-Phenylpentadecane 2189-60-8, 1-Phenyloctane 2207-01-4 2207-03-6
 2207-04-7 2213-23-2, 2,4-Dimethylheptane 2216-30-0,
 2,5-Dimethylheptane 2216-32-2, 4-Ethylheptane 2216-33-3,
 3-Methyloctane 2216-34-4, 4-Methyloctane 2243-98-3, 1-Undecyne
 2437-56-1, 1-Tridecene 2532-58-3 2613-61-8, 2,4,6-Trimethylheptane
 2690-08-6, Octyl sulfide 2765-18-6, 1-Propylnaphthalene 2851-83-4,
 Dodecyl ethyl sulfide 2882-98-6, 1-Cyclopentyl-nonane 2883-02-5,
 1-Cyclohexyl-nonane 2885-00-9, 1-Octadecanethiol
 2917-26-2, 1-Hexadecanethiol 3074-71-3, 2,3-Dimethylheptane

3074-75-7, 4-Ethyl-2-methylhexane 3074-76-8, 3-Ethyl-3-methylhexane
 3074-77-9, 3-Ethyl-4-methylhexane 3129-90-6, Isothiocyanic acid
 3178-29-8, 4-Propylheptane 3221-61-2, 2-Methyloctane 3452-07-1,
 1-Eicosene 3452-09-3, 1-Nonyne 3522-94-9, 2,2,5-Trimethylhexane
 3698-89-3, Dodecyl methyl sulfide 3698-93-9, Octyl propyl sulfide
 3698-94-0, Ethyl octyl sulfide 3698-95-1, Methyl octyl sulfide
 3741-00-2 3877-15-4, Methyl propyl sulfide 4032-86-4,
 3,3-Dimethylheptane 4032-92-2, 2,4,4-Trimethylheptane 4032-93-3,
 2,3,6-Trimethylheptane 4032-94-4, 2,4-Dimethyloctane 4050-45-7
 4110-44-5, 3,3-Dimethyloctane 4110-50-3, Ethyl propyl sulfide
 4292-75-5, 1-Cyclohexylhexane 4292-92-6 4457-00-5 4485-77-2, Nonyl
 disulfide 4669-01-6, 1-Cyclopentylpentadecane 4753-80-4,
 Thiacycloheptane 5171-84-6, 3,3,4,4-Tetramethylhexane 5332-52-5,
 1-Undecanethiol 5408-86-6, 2,3-Dibromobutane 5617-41-4 5617-42-5,
 1-Cyclopentylheptane 5634-30-0, 1-Cyclopentyldecane 5881-17-4,
 3-Ethyloctane 5911-04-6, 3-Methylnonane 6006-33-3,
 1-Cyclohexyltridecane 6006-34-4, 1-Cyclopentyltridecane 6006-95-7,
 1-Cyclohexylpentadecane 6163-66-2, tert-Butyl ether 6294-31-1, Hexyl
 sulfide 6742-54-7 6765-39-5, 1-Heptadecene 6785-23-5,
 1-Cyclopentylundecane 6812-38-0, 1-Cyclohexylhexadecane 6812-39-1,
 1-Cyclopentylhexadecane 6863-58-7, sec-Butyl ether 6876-18-2,
 3-Isopropyl-2-methylhexane 6876-23-9 7146-60-3, 2,3-Dimethyloctane
 7154-79-2 7154-80-5, 3,3,5-Trimethylheptane 7220-26-0,
 3-Ethyl-2,4-dimethylhexane 7289-44-3, Methyl undecyl sulfide
 7289-45-4, Methyl tetradecyl sulfide 7309-44-6, Ethyl hexyl sulfide
 7372-86-3, 2-Ethyl-6-methylnaphthalene 7642-09-3 7688-21-3
 10496-15-8, Hexyl disulfide 10496-16-9, Heptyl disulfide 10496-18-1,
 Decyl disulfide 13269-52-8 13360-61-7, 1-Pentadecene 13373-97-2,
 1-Eicosanethiol 13475-78-0, 5-Ethyl-2-methylheptane 13475-79-1,
 2,4-Dimethyl-3-isopropylpentane 13475-81-5, 2,2,3,3-Tetramethylhexane
 13952-84-6, sec-Butylamine 14676-29-0, 3-Ethyl-2-methylheptane
 14720-74-2, 2,2,4-Trimethylheptane 15869-80-4, 3-Ethylheptane
 15869-85-9, 5-Methylnonane 15869-86-0, 4-Ethyloctane 15869-87-1,
 2,2-Dimethyloctane 15869-89-3, 2,5-Dimethyloctane 15869-92-8,
 3,4-Dimethyloctane 15869-93-9, 3,5-Dimethyloctane 15869-94-0,
 3,6-Dimethyloctane 15869-95-1, 4,4-Dimethyloctane 15869-96-2,
 4,5-Dimethyloctane 16747-25-4, 2,2,3-Trimethylhexane 16747-26-5,
 2,2,4-Trimethylhexane 16747-28-7 16747-30-1, 2,4,4-Trimethylhexane
 16747-31-2, 3,3,4-Trimethylhexane 16747-32-3,
 3-Ethyl-2,2-dimethylpentane 16747-33-4, 3-Ethyl-2,3-dimethylpentane
 16747-38-9, 2,3,3,4-Tetramethylpentane 16747-42-5,
 2,2,4,5-Tetramethylhexane 16747-44-7, 2,2,3,3,4-Pentamethylpentane
 16747-45-8, 2,2,3,4,4,-Pentamethylpentane 16789-46-1,
 3-Ethyl-2-methylhexane 16900-07-5, Butyl octyl sulfide 16900-08-6,
 Butyl dodecyl sulfide 16967-04-7, Butyl hexyl sulfide 17059-55-1,
 2-Ethyl-7-methylnaphthalene 17301-94-9, 4-Methylnonane 17302-01-1,
 3-Ethyl-3-methylheptane 17302-02-2, 3,3-Diethylhexane 17302-04-4,
 4-Ethyl-4-methylheptane 17348-59-3, Isopropyl tert-butyl ether
 18435-45-5, 1-Nonadecene 18437-89-3, Butyl hexadecyl sulfide
 19313-57-6, Butyl decyl sulfide 19313-61-2, Decyl ethyl sulfide
 19398-77-7, 3,4-Diethylhexane 19484-26-5, 1-Tridecanethiol 20278-84-6,
 2,4,5-Trimethylheptane 20278-85-7, 2,3,5-Trimethylheptane 20278-87-9,
 3,3,4-Trimethylheptane 20278-88-0, 3,4,4-Trimethylheptane 20278-89-1,
 3,4,5-Trimethylheptane 20291-60-5, Hexyl methyl sulfide 20291-61-6,
 Heptyl methyl sulfide 20291-91-2, 3-Ethyl-2,2-dimethylhexane
 20291-95-6, 2,2,5-Trimethylheptane 22438-39-7, Decyl methyl sulfide
 24768-42-1, Butyl pentyl sulfide 24768-43-2, Hexyl propyl sulfide
 24768-44-3, Ethyl heptyl sulfide 24768-46-5, Heptyl propyl sulfide
 25276-70-4, 1-Pentadecanethiol 26158-99-6, Ethyl pentyl sulfide
 26186-00-5, 1-Heptadecyne 26186-01-6, 1-Nonadecyne 26186-02-7,
 1-Tridecyne 27563-68-4 31032-94-7, 2-Ethyl-3-methylnaphthalene
 36653-82-4, 1-Hexadecanol 38842-05-6, 1,2,3,5-Tetraethylbenzene

40289-98-3, Methyl octadecyl sulfide 40813-84-1 41947-84-6, Ethyl octadecyl sulfide 42205-08-3, 1,2,3-Triethylbenzene 42841-80-5, Pentyl propyl sulfide 51750-65-3, 2,2,4,4-Tetramethylhexane 52896-87-4, 4-Isopropylheptane 52896-88-5, 4-Ethyl-2-methylheptane 52896-89-6, 4-Ethyl-3-methylheptane 52896-90-9, 3-Ethyl-5-methylheptane 52896-91-0, 3-Ethyl-4-methylheptane 52896-92-1, 2,2,3-Trimethylheptane 52896-93-2, 2,3,3-Trimethylheptane 52896-95-4, 2,3,4-Trimethylheptane 52896-99-8, 4-Ethyl-2,2-dimethylhexane 52897-00-4, 3-Ethyl-2,3-dimethylhexane 52897-01-5, 4-Ethyl-2,3-dimethylhexane 52897-03-7, 4-Ethyl-2,4-dimethylhexane 52897-04-8, 3-Ethyl-2,5-dimethylhexane 52897-05-9, 4-Ethyl-3,3-dimethylhexane 52897-06-0, 3-Ethyl-3,4-dimethylhexane 52897-08-2, 2,2,3,4-Tetramethylhexane 52897-09-3, 2,2,3,5-Tetramethylhexane 52897-10-6, 2,3,3,4-Tetramethylhexane 52897-11-7, 2,3,3,5-Tetramethylhexane 52897-12-8, 2,3,4,4-Tetramethylhexane 52897-15-1, 2,3,4,5-Tetramethylhexane 52897-16-2 52897-17-3 52897-18-4 52897-19-5, 3-Ethyl-2,3,4-trimethylpentane 53161-72-1, 1,2-Diiodobutane 53193-22-9, 1-Heptadecanethiol 53193-23-0, 1-Nonadecanethiol 54105-66-7, 1-Cyclohexylundecane 59973-07-8, Methyl nonyl sulfide 59973-08-9, Ethyl nonyl sulfide 62103-66-6, Nonyl propyl sulfide 62155-09-3, Methyl tridecyl sulfide 62155-10-6, Methyl pentadecyl sulfide 62155-11-7, Heptadecyl methyl sulfide 62155-12-8, Methyl nonadecyl sulfide 64919-20-6, Ethyl pentadecyl sulfide 66271-54-3, Ethyl tetradecyl sulfide 66271-55-4, Propyl tridecyl sulfide 66271-81-6, Ethyl tridecyl sulfide 66271-82-7, Dodecyl propyl sulfide 66271-83-8, Butyl undecyl sulfide 66292-32-8, Pentadecyl propyl sulfide 66292-33-9, Butyl tetradecyl sulfide 66359-40-8, Ethyl heptadecyl sulfide 66359-41-9, Hexadecyl propyl sulfide 66359-42-0, Butyl pentadecyl sulfide 66455-35-4, Heptadecyl propyl sulfide 66577-30-8, Ethyl undecyl sulfide 66577-31-9, Decyl propyl sulfide 66577-32-0, Butyl nonyl sulfide 66577-61-5, Propyl tetradecyl sulfide 66577-62-6, Butyl tridecyl sulfide 66826-84-4, Propyl undecyl sulfide
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
 (b.p. and critical temperature and f.p. and heat of evaporation of)

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 AN 1989:581192 CAPLUS
 DN 111:181192
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 TI Critical properties of chemicals
 AU Yaws, C. L.; Chen, D.; Yang, H. C.; Tan, L.; Nico, D.
 CS Lamar Univ., Beaumont, TX, USA
 SO Hydrocarbon Processing, International Edition (1989), 68(7), 61-4
 CODEN: IHPRBS; ISSN: 0018-8190
 DT Journal
 LA English
 CC 65-6 (General Physical Chemistry)
 AB The critical temps. and pressures and vols., f.p., normal b.p. critical compressibility and acentric factors are tabulated for 700 organic compds.
 ST crit property org compd
 IT Compression and Compressibility
 (critical factor for, of chemical substances)
 IT Boiling point
 Freezing point
 (of chemical substances)
 IT Organic compounds, properties
 RL: PRP (Properties)
 (selected values for critical consts. for)
 IT Critical constant
 (pressure, of chemical substances, selected value for)

IT Critical constant
(temperature, of chemical substances, selected value for)

IT Critical constant
(volume, of chemical substances, selected value for)

IT 50-00-0, Formaldehyde, properties 56-23-5, Carbon tetrachloride, properties 60-29-7, Ethyl ether, properties 62-53-3, Aniline, properties 64-17-5, Ethyl alcohol, properties 64-18-6, Formic acid, properties 64-19-7, Acetic acid, properties 65-85-0, Benzoic acid, properties 66-25-1, Hexanal 67-56-1, Methanol, properties 67-63-0, Isopropyl alcohol, properties 67-64-1, Acetone, properties 67-66-3, Chloroform, properties 67-72-1, Hexachloroethane 71-23-8, Propyl alcohol, properties 71-36-3, Butyl alcohol, properties 71-41-0, Pentyl alcohol, properties 71-43-2, Benzene, properties 74-82-8, Methane, properties 74-83-9, Bromomethane, properties 74-84-0, Ethane, properties 74-85-1, Ethylene, properties 74-86-2, Ethyne, properties 74-87-3, Chloromethane, properties 74-88-4, Iodomethane, properties 74-89-5, Methylamine, properties 74-93-1, Methanethiol, properties 74-96-4, Bromoethane 74-98-6, Propane, properties 74-99-7, 1-Propyne 75-00-3, Chloroethane 75-01-4, Chloroethene, properties 75-02-5, Fluoroethene 75-03-6, Iodoethane 75-04-7, Ethylamine, properties 75-05-8, Acetonitrile, properties 75-07-0, Acetaldehyde, properties 75-08-1, Ethanethiol 75-09-2, Dichloromethane, properties 75-10-5, Difluoromethane 75-11-6, Diiodomethane 75-15-0, Carbon disulfide, properties 75-18-3, Methyl sulfide 75-19-4, Cyclopropane 75-21-8, Ethylene oxide, properties 75-26-3, 2-Bromopropane 75-28-5 75-29-6, 2-Chloropropane 75-30-9, 2-Iodopropane 75-33-2, 2-Propanethiol 75-34-3, 1,1-Dichloroethane 75-35-4, 1,1-Dichloroethene, properties 75-36-5, Acetyl chloride 75-37-6, 1,1-Difluoroethane 75-38-7, 1,1-Difluoroethene 75-43-4, Dichlorofluoromethane 75-45-6, Chlorodifluoromethane 75-46-7, Trifluoromethane 75-47-8, Triiodomethane 75-50-3, Trimethylamine, properties 75-52-5, Nitromethane, properties 75-56-9, Propylene oxide, properties 75-64-9, tert-Butylamine, properties 75-65-0, tert-Butyl alcohol, properties 75-66-1, 2-Methyl-2-propanethiol 75-69-4, Trichlorofluoromethane 75-71-8, Dichlorodifluoromethane 75-72-9, Chlorotrifluoromethane 75-73-0, Carbon tetrafluoride 75-83-2, 2,2-Dimethylbutane 75-85-4, tert-Pentyl alcohol 76-01-7, Pentachloroethane 76-13-1, 1,1,2-Trichlorotrifluoroethane 76-14-2, 1,2-Dichlorotetrafluoroethane 76-15-3 76-16-4, Hexafluoroethane 78-75-1, 1,2-Dibromopropane 78-76-2, 2-Bromobutane 78-78-4 78-79-5, 2-Methyl-1,3-butadiene, properties 78-82-0, Isobutyronitrile 78-86-4, 2-Chlorobutane 78-87-5, 1,2-Dichloropropane 78-92-2, sec-Butyl alcohol 78-93-3, 2-Butanone, properties 79-00-5, 1,1,2-Trichloroethane 79-01-6, Trichloroethene, properties 79-10-7, Acrylic acid, properties 79-24-3, Nitroethane 79-29-8, 2,3-Dimethylbutane 79-34-5, 1,1,2,2-Tetrachloroethane 79-46-9, 2-Nitropropane 86-89-5, 1-Pentylnaphthalene 87-85-4, Hexamethylbenzene 90-12-0, 1-Methylnaphthalene 91-20-3, Naphthalene, properties 91-57-6, 2-Methylnaphthalene 92-52-4, Biphenyl, properties 93-22-1, 2-Pentylnaphthalene 95-47-6, o-Xylene, properties 95-48-7, o-Cresol, properties 95-50-1, o-Dichlorobenzene 95-63-6, 1,2,4-Trimethylbenzene 95-93-2, 1,2,4,5-Tetramethylbenzene 96-14-0, 3-Methylpentane 96-18-4, 1,2,3-Trichloropropane 96-37-7, Methylcyclopentane 98-08-8 98-82-8, Cumene 98-83-9, α -Methylstyrene, properties 100-41-4, Ethylbenzene, properties 100-42-5, Styrene, properties 100-47-0, Benzonitrile, properties 100-80-1, m-Methylstyrene 102-25-0, 1,3,5-Triethylbenzene 103-65-1, Propylbenzene 104-51-8, Butylbenzene 104-72-3, 1-Phenyldecane 105-05-5, p-Diethylbenzene 106-42-3, p-Xylene, properties 106-44-5, p-Cresol, properties 106-46-7, p-Dichlorobenzene 106-93-4, 1,2-Dibromoethane 106-94-5, 1-Bromopropane 106-95-6, 3-Bromo-1-propene, properties 106-97-8, Butane, properties 106-98-9, 1-Butene, properties 106-99-0,

1,3-Butadiene, properties 107-00-6, 1-Butyne 107-03-9, 1-Propanethiol 107-05-1, 3-Chloro-1-propene 107-06-2, 1,2-Dichloroethane, properties 107-08-4, 1-Iodopropane 107-10-8, Propylamine, properties 107-12-0, Propionitrile 107-13-1, Acrylonitrile, properties 107-18-6, Allyl alcohol, properties 107-21-1, Ethylene glycol, properties 107-31-3, Methyl formate 107-83-5, 2-Methylpentane 107-84-6, 1-Chloro-3-methylbutane 107-87-9, 2-Pentanone 108-03-2, 1-Nitropropane 108-08-7, 2,4-Dimethylpentane 108-20-3, Isopropyl ether 108-24-7, Acetic anhydride 108-38-3, m-Xylene, properties 108-39-4, m-Cresol, properties 108-67-8, Mesitylene, properties 108-86-1, Bromobenzene, properties 108-87-2, Methylcyclohexane 108-88-3, Toluene, properties 108-90-7, Chlorobenzene, properties 108-93-0, Cyclohexanol, properties 108-94-1, Cyclohexanone, properties 108-95-2, Phenol, properties 108-98-5, Benzenethiol, properties 108-99-6, 3-Picoline 109-06-8, 2-Picoline 109-65-9, 1-Bromobutane 109-66-0, Pentane, properties 109-67-1, 1-Pentene 109-69-3, 1-Chlorobutane 109-73-9, Butylamine, properties 109-74-0, Butyronitrile 109-79-5, 1-Butanethiol 109-89-7, Diethylamine, properties 110-00-9, Furan 110-01-0, Thiacyclopentane 110-02-1, Thiophene 110-53-2, 1-Bromopentane 110-54-3, Hexane, properties 110-62-3, Valeraldehyde 110-66-7, 1-Pentanethiol 110-81-6, Ethyl disulfide 110-82-7, Cyclohexane, properties 110-83-8, Cyclohexene, properties 110-86-1, Pyridine, properties 111-27-3, Hexyl alcohol, properties 111-31-9, 1-Hexanethiol 111-43-3, Propyl ether 111-47-7 111-65-9, Octane, properties 111-66-0, 1-Octene 111-70-6, Heptyl alcohol 111-71-7, Heptanal 111-84-2, Nonane 111-87-5, Octyl alcohol, properties 111-88-6, 1-Octanethiol 112-30-1, Decyl alcohol 112-31-2, Decanal 112-40-3, Dodecane 112-41-4, 1-Dodecene 112-42-5, Undecyl alcohol 112-51-6, Pentyl disulfide 112-53-8, Dodecyl alcohol 112-55-0, 1-Dodecanethiol 112-70-9, 1-Tridecanol 112-72-1, 1-Tetradecanol 112-88-9, 1-Octadecene 112-92-5, 1-Octadecanol 112-95-8, Eicosane 115-07-1, Propene, properties 115-10-6, Methyl ether 115-11-7, 2-Methylpropene, properties 115-25-3, Octafluorocyclobutane 116-14-3, Tetrafluoroethene, properties 118-74-1, Hexachlorobenzene 121-44-8, Triethylamine, properties 123-01-3, 1-Phenyldodecane 123-02-4, 1-Phenyltridecane 123-38-6, Propionaldehyde, properties 123-72-8, Butyraldehyde 123-75-1, Pyrrolidine, properties 123-91-1, p-Dioxane, properties 124-11-8, 1-Nonene 124-13-0, Octanal 124-18-5, Decane 124-19-6, Nonanal 124-38-9, Carbon dioxide, properties 124-40-3, Dimethylamine, properties 127-18-4, Tetrachloroethene, properties 135-01-3, o-Diethylbenzene 141-78-6, Ethyl acetate, properties 141-93-5, m-Diethylbenzene 142-28-9, 1,3-Dichloropropane 142-29-0, Cyclopentene 142-82-5, Heptane, properties 142-96-1, Butyl ether 143-08-8, Nonyl alcohol 143-10-2, 1-Decanethiol 151-56-4, Ethylenimine, properties 156-59-2, cis-1,2-Dichloroethene 156-60-5, trans-1,2-Dichloroethene 157-40-4, Spiropentane 275-51-4, Azulene 287-23-0, Cyclobutane 287-27-4, Thiacyclobutane 287-92-3, Cyclopentane

RL: PRP (Properties)

(critical consts. of, selected values for)

IT 291-64-5, Cycloheptane 292-64-8, Cyclooctane 352-32-9, p-Fluorotoluene 352-93-2, Ethylsulfide 353-36-6, Fluoroethane 359-11-5, Trifluoroethene 367-11-3, o-Difluorobenzene 372-18-9, m-Difluorobenzene 392-56-3, Hexafluorobenzene 420-12-2, Thiacyclopropane 420-26-8, 2-Fluoropropane 420-46-2, 1,1,1-Trifluoroethane 460-12-8, 1,3-Butadiyne 460-13-9, 1-Fluoropropane 460-19-5, Cyanogen 462-06-6, Fluorobenzene 463-49-0, 1,2-Propadiene 463-51-4, Ketene 463-58-1, Carbonyl sulfide 463-82-1 464-06-2, 2,2,3-Trimethylbutane 488-23-3, 1,2,3,4-Tetramethylbenzene 493-01-6 493-02-7 503-17-3, 2-Butyne 507-09-5, Thioacetic acid, properties 507-19-7, 2-Bromo-2-methylpropane 507-20-0, 2-Chloro-2-methylpropane 513-35-9, 2-Methyl-2-butene 513-36-0, 1-Chloro-2-methylpropane 513-44-0, 2-Methyl-1-propanethiol 513-53-1,

2-Butanethiol 526-73-8, 1,2,3-Trimethylbenzene 527-53-7,
 1,2,3,5-Tetramethylbenzene 533-98-2, 1,2-Dibromobutane 536-74-3,
 Ethynylbenzene 538-68-1, Pentylbenzene 540-36-3, p-Difluorobenzene
 540-54-5, 1-Chloropropane 540-67-0, Ethyl methyl ether 540-84-1,
 2,2,4-Trimethylpentane 541-73-1, m-Dichlorobenzene 543-59-9,
 1-Chloropentane 544-25-2, 1,3,5-Cycloheptatriene 544-40-1, Butyl
 sulfide 544-76-3, Hexadecane 554-14-3, 2-Methylthiophene 556-56-9,
 3-Iodo-1-propene 557-17-5, Methyl propyl ether 558-17-8,
 2-Iodo-2-methylpropane 558-37-2, 3,3-Dimethyl-1-butene 560-21-4,
 2,3,3-Trimethylpentane 562-49-2, 3,3-Dimethylpentane 563-16-6,
 3,3-Dimethylhexane 563-45-1, 3-Methyl-1-butene 563-46-2,
 2-Methyl-1-butene 563-78-0, 2,3-Dimethyl-1-butene 563-79-1,
 2,3-Dimethyl-2-butene 564-02-3, 2,2,3-Trimethylpentane 565-59-3,
 2,3-Dimethylpentane 565-75-3, 2,3,4-Trimethylpentane 571-58-4,
 1,4-Dimethylnaphthalene 571-61-9, 1,5-Dimethylnaphthalene 573-98-8,
 1,2-Dimethylnaphthalene 575-37-1, 1,7-Dimethylnaphthalene 575-41-7,
 1,3-Dimethylnaphthalene 575-43-9, 1,6-Dimethylnaphthalene 581-40-8,
 2,3-Dimethylnaphthalene 581-42-0, 2,6-Dimethylnaphthalene 582-16-1,
 2,7-Dimethylnaphthalene 583-48-2, 3,4-Dimethylhexane 584-94-1,
 2,3-Dimethylhexane 589-34-4, 3-Methylhexane 589-43-5,
 2,4-Dimethylhexane 589-53-7, 4-Methylheptane 589-81-1, 3-Methylheptane
 590-18-1 590-19-2, 1,2-Butadiene 590-35-2, 2,2-Dimethylpentane
 590-66-9, 1,1-Dimethylcyclohexane 590-73-8, 2,2-Dimethylhexane
 591-50-4, Iodobenzene 591-76-4, 2-Methylhexane 591-93-5,
 1,4-Pentadiene 591-95-7, 1,2-Pentadiene 591-96-8, 2,3-Pentadiene
 592-13-2, 2,5-Dimethylhexane 592-27-8, 2-Methylheptane 592-41-6,
 1-Hexene, properties 592-76-7, 1-Heptene 593-45-3, Octadecane
 593-53-3, Fluoromethane 593-60-2, Bromoethylene 593-70-4,
 Chlorofluoromethane 594-20-7, 2,2-Dichloropropane 594-36-5,
 2-Chloro-2-methylbutane 594-51-4, 2,3-Dibromo-2-methylbutane 594-82-1,
 2,2,3,3-Tetramethylbutane 598-23-2, 3-Methyl-1-butyne 598-25-4,
 3-Methyl-1,2-butadiene 598-29-8, 1,2-Diiodopropane 598-53-8, Methyl
 isopropyl ether 598-58-3, Methyl nitrate 600-24-8, 2-Nitrobutane
 604-88-6, Hexaethylbenzene 605-01-6, Pentaethylbenzene 609-26-7,
 3-Ethyl-2-methylpentane 611-14-3, o-Ethyltoluene 611-15-4,
 o-Methylstyrene 616-12-6 616-44-4, 3-Methylthiophene 617-78-7,
 3-Ethylpentane 619-99-8, 3-Ethylhexane 620-14-4, m-Ethyltoluene
 622-96-8 622-97-9, p-Methylstyrene 624-29-3 624-64-6 624-73-7,
 1,2-Diiodoethane 624-89-5, Ethyl methyl sulfide 624-91-9, Methyl
 nitrite 624-92-0, Methyl disulfide 625-27-4, 2-Methyl-2-pentene
 625-58-1, Ethyl nitrate 625-80-9, Isopropyl sulfide 627-05-4,
 1-Nitrobutane 627-13-4, Propyl nitrate 627-19-0, 1-Pentyne 627-20-3
 627-21-4, 2-Pentyne 628-29-5, Butyl methyl sulfide 628-71-7, 1-Heptyne
 629-05-0, 1-Octyne 629-19-6, Propyl disulfide 629-20-9,
 1,3,5,7-Cyclooctatetraene 629-45-8, Butyl disulfide 629-50-5,
 Tridecane 629-59-4, Tetradecane 629-62-9, Pentadecane 629-65-2,
 Heptyl sulfide 629-73-2, 1-Hexadecene 629-74-3, 1-Hexadecyne
 629-76-5, 1-Pentadecanol 629-78-7, Heptadecane 629-89-0, 1-Octadecyne
 629-92-5, Nonadecane 629-96-9, 1-Eicosanol 630-08-0, Carbon monoxide,
 properties 635-81-4, 1,2,4,5-Tetraethylbenzene 638-04-0 638-46-0,
 Butyl ethyl sulfide 642-32-0, 1,2,3,4-Tetraethylbenzene 646-04-8
 674-76-0 689-97-4, 1-Buten-3-yne 691-37-2, 4-Methyl-1-pentene
 691-38-3 693-02-7, 1-Hexyne 693-83-4, Decyl sulfide 693-89-0,
 1-Methylcyclopentene 700-12-9, Pentamethylbenzene 760-20-3,
 3-Methyl-1-pentene 760-21-4, 2-Ethyl-1-butene 763-29-1,
 2-Methyl-1-pentene 764-93-2, 1-Decyne 765-03-7, 1-Dodecyne 765-10-6,
 1-Tetradecyne 765-13-9, 1-Pentadecyne 765-27-5, 1-Eicosyne 766-90-5
 821-95-4, 1-Undecene 822-27-5, Octyl disulfide 822-35-5, Cyclobutene
 822-50-4 871-83-0, 2-Methylnonane 872-05-9, 1-Decene 872-10-6,
 Pentyl sulfide 873-66-5 877-44-1, 1,2,4-Triethylbenzene 921-47-1,
 2,3,4-Trimethylhexane 922-28-1, 3,4-Dimethylheptane 922-62-3
 926-82-9, 3,5-Dimethylheptane 929-98-6, Nonyl sulfide 939-27-5,

2-Ethyl-naphthalene 1067-08-9, 3-Ethyl-3-methylpentane 1067-20-5,
 3,3-Diethylpentane 1068-19-5, 4,4-Dimethylheptane 1068-87-7,
 3-Ethyl-2,4-dimethylpentane 1069-53-0, 2,3,5-Trimethylhexane
 1070-87-7, 2,2,4,4-Tetramethylpentane 1071-26-7, 2,2-Dimethylheptane
 1071-81-4, 2,2,5,5-Tetramethylhexane 1072-05-5, 2,6-Dimethylheptane
 1072-16-8, 2,7-Dimethyloctane 1077-16-3, Hexylbenzene 1078-71-3,
 1-Phenylheptane 1081-77-2, 1-Phenyl-nonane 1120-21-4, Undecane
 1120-36-1, 1-Tetradecene 1120-62-3, 3-Methylcyclopentene 1127-76-0,
 1-Ethyl-naphthalene 1134-62-9, 2-Butyl-naphthalene 1186-53-4,
 2,2,3,4-Tetramethylpentane 1189-99-7, 2,5,5-Trimethylheptane
 1190-83-6, 2,2,6-Trimethylheptane 1192-18-3 1454-84-8, 1-Nonadecanol
 1454-85-9, 1-Heptadecanol 1455-21-6, 1-Nonanethiol 1459-09-2,
 1-Phenylhexadecane 1459-10-5, 1-Phenyltetradecane 1551-21-9, Isopropyl
 methyl sulfide 1574-41-0 1613-46-3, Butyl propyl sulfide 1613-51-0,
 Thiacyclohexane 1630-77-9, cis-1,2-Difluoroethene 1630-78-0,
 trans-1,2-Difluoroethene 1634-04-4, Methyl-tert-butyl ether 1634-09-9,
 1-Butyl-naphthalene 1638-26-2, 1,1-Dimethylcyclopentane 1639-09-4,
 1-Heptanethiol 1640-89-7, Ethylcyclopentane 1678-91-7,
 Ethylcyclohexane 1678-92-8, Propylcyclohexane 1678-93-9,
 Butylcyclohexane 1679-07-8, Cyclopentanethiol 1679-09-0,
 2-Methyl-2-butanethiol 1712-64-7, Isopropyl nitrate 1741-83-9, Methyl
 pentyl sulfide 1759-58-6 1759-81-5, 4-Methylcyclopentene 1795-15-9,
 1-Cyclohexyloctane 1795-16-0, 1-Cyclohexyldecane 1795-17-1,
 1-Cyclohexyldodecane 1795-18-2, 1-Cyclohexyltetradecane 1795-20-6
 1795-21-7, 1-Cyclopentyldecane 1795-22-8, 1-Cyclopentyltetradecane
 RL: PRP (Properties)

(critical consts. of, selected values for)

IT 1795-26-2 1795-27-3 2004-70-8 2027-19-2, 2-Propyl-naphthalene
 2040-95-1, Butylcyclopentane 2040-96-2, Propylcyclopentane 2051-30-1,
 2,6-Dimethyloctane 2074-87-5, Cyanogen 2079-95-0, 1-Tetradecanethiol
 2131-18-2, 1-Phenylpentadecane 2189-60-8, 1-Phenyloctane 2207-01-4
 2207-03-6 2207-04-7 2213-23-2, 2,4-Dimethylheptane 2216-30-0,
 2,5-Dimethylheptane 2216-32-2, 4-Ethylheptane 2216-33-3,
 3-Methyloctane 2216-34-4, 4-Methyloctane 2243-98-3, 1-Undecyne
 2437-56-1, 1-Tridecene 2532-58-3 2613-61-8, 2,4,6-Trimethylheptane
 2690-08-6, Octyl sulfide 2765-18-6, 1-Propyl-naphthalene 2851-83-4,
 Dodecyl ethyl sulfide 2882-98-6, 1-Cyclopentyl-nonane 2883-02-5,
 1-Cyclohexyl-nonane 2885-00-9, 1-Octadecanethiol
 2917-26-2, 1-Hexadecanethiol 3074-71-3 3074-75-7,
 4-Ethyl-2-methylhexane 3074-76-8, 3-Ethyl-3-methylhexane 3074-77-9,
 3-Ethyl-4-methylhexane 3129-90-6, Isothiocyanic acid 3178-29-8,
 4-Propylheptane 3221-61-2, 2-Methyloctane 3452-07-1, 1-Eicosene
 3452-09-3, 1-Nonyne 3522-94-9, 2,2,5-Trimethylhexane 3698-89-3,
 Dodecyl methyl sulfide 3698-93-9, Octyl propyl sulfide 3698-94-0,
 Ethyl octyl sulfide 3698-95-1, Methyl octyl sulfide 3741-00-2
 3877-15-4, Methyl propyl sulfide 4032-86-4, 3,3-Dimethylheptane
 4032-92-2, 2,4,4-Trimethylheptane 4032-93-3, 2,3,6-Trimethylheptane
 4032-94-4, 2,4-Dimethyloctane 4050-45-7 4110-44-5, 3,3-Dimethyloctane
 4110-50-3, Ethyl propyl sulfide 4292-75-5, 1-Cyclohexylhexane
 4292-92-6, Pentylcyclohexane 4457-00-5 4485-77-2, Nonyl disulfide
 4669-01-6, 1-Cyclopentylpentadecane 4753-80-4, Thiacycloheptane
 5171-84-6, 3,3,4,4-Tetramethylhexane 5332-52-5, 1-Undecanethiol
 5408-86-6, 2,3-Dibromobutane 5617-41-4 5617-42-5, 1-Cyclopentylheptane
 5634-30-0, 1-Cyclopentyl-dodecane 5881-17-4, 3-Ethyl-octane 5911-04-6,
 3-Methyl-nonane 6006-33-3, 1-Cyclohexyltridecane 6006-34-4,
 1-Cyclopentyltridecane 6006-95-7, 1-Cyclohexylpentadecane 6163-66-2,
 tert-Butyl ether 6294-31-1, Hexyl sulfide 6742-54-7, 1-Phenylundecane
 6765-39-5, 1-Heptadecene 6785-23-5, 1-Cyclopentylundecane 6812-38-0,
 1-Cyclohexylhexadecane 6812-39-1, 1-Cyclopentylhexadecane 6863-58-7,
 sec-Butyl ether 6876-18-2, 3-Isopropyl-2-methylhexane 6876-23-9
 7146-60-3, 2,3-Dimethyloctane 7154-79-2, 2,2,3,3-Tetramethylpentane
 7154-80-5, 3,3,5-Trimethylheptane 7220-26-0, 3-Ethyl-2,4-dimethylhexane

7289-44-3, Methyl undecyl sulfide 7289-45-4, Methyl tetradecyl sulfide
 7309-44-6, Ethyl hexyl sulfide 7372-86-3, 2-Ethyl-6-methylnaphthalene
 7642-09-3 7688-21-3 10496-15-8, Hexyl disulfide 10496-16-9, Heptyl
 disulfide 10496-18-1, Decyl disulfide 13269-52-8 13360-61-7,
 1-Pentadecene 13373-97-2, 1-Eicosanethiol 13475-78-0,
 5-Ethyl-2-methylheptane 13475-79-1, 2,4-Dimethyl-3-isopropylpentane
 13475-81-5, 2,2,3,3-Tetramethylhexane 13952-84-6, sec-Butylamine
 14676-29-0, 3-Ethyl-2-methylheptane 14720-74-2, 2,2,4-Trimethylheptane
 15869-80-4, 3-Ethylheptane 15869-85-9, 5-Methylnonane 15869-86-0,
 4-Ethyl-octane 15869-87-1, 2,2-Dimethyloctane 15869-89-3,
 2,5-Dimethyloctane 15869-92-8, 3,4-Dimethyloctane 15869-93-9,
 3,5-Dimethyloctane 15869-94-0, 3,6-Dimethyloctane 15869-95-1,
 4,4-Dimethyloctane 15869-96-2, 4,5-Dimethyloctane 16747-25-4,
 2,2,3-Trimethylhexane 16747-26-5, 2,2,4-Trimethylhexane 16747-28-7,
 2,3,3-Trimethylhexane 16747-30-1, 2,4,4-Trimethylhexane 16747-31-2,
 3,3,4-Trimethylhexane 16747-32-3, 3-Ethyl-2,2-dimethylpentane
 16747-33-4, 3-Ethyl-2,3-dimethylpentane 16747-38-9,
 2,3,3,4-Tetramethylpentane 16747-42-5, 2,2,4,5-Tetramethylhexane
 16747-44-7, 2,2,3,3,4-Pentamethylpentane 16747-45-8,
 2,2,3,4,4-Pentamethylpentane 16789-46-1, 3-Ethyl-2-methylhexane
 16900-07-5, Butyl octyl sulfide 16900-08-6, Butyl dodecyl sulfide
 16967-04-7, Butyl hexyl sulfide 17059-55-1, 2-Ethyl-7-methylnaphthalene
 17301-94-9, 4-Methylnonane 17302-01-1, 3-Ethyl-3-methylheptane
 17302-02-2, 3,3-Diethylhexane 17302-04-4, 4-Ethyl-4-methylheptane
 17348-59-3, Isopropyl-tert-butyl ether 18435-45-5, 1-Nonadecene
 18437-89-3, Butyl hexadecyl sulfide 19313-57-6, Butyl decyl sulfide
 19313-61-2, Decyl ethyl sulfide 19398-77-7, 3,4-Diethylhexane
 19484-26-5, 1-Tridecanethiol 20278-84-6, 2,4,5-Trimethylheptane
 20278-85-7, 2,3,5-Trimethylheptane 20278-87-9, 3,3,4-Trimethylheptane
 20278-88-0, 3,4,4-Trimethylheptane 20278-89-1, 3,4,5-Trimethylheptane
 20291-60-5, Hexyl methyl sulfide 20291-61-6, Heptyl methyl sulfide
 20291-91-2, 3-Ethyl-2,2-dimethylhexane 20291-95-6,
 2,2,5-Trimethylheptane 22438-39-7, Decyl methyl sulfide 24768-42-1,
 Butyl pentyl sulfide 24768-43-2, Hexyl propyl sulfide 24768-44-3,
 Ethyl heptyl sulfide 24768-46-5, Heptyl propyl sulfide 25276-70-4,
 1-Pentadecanethiol 26158-99-6, Ethyl pentyl sulfide 26186-00-5,
 1-Heptadecyne 26186-01-6, 1-Nonadecyne 26186-02-7, 1-Tridecyne
 27563-68-4, Hexadecyl methyl sulfide 31032-94-7,
 2-Ethyl-3-methylnaphthalene 36653-82-4, 1-Hexadecanol 38842-05-6,
 1,2,3,5-Tetraethylbenzene 40289-98-3, Methyl octadecyl sulfide
 40813-84-1, Butyl heptyl sulfide 41947-84-6, Ethyl octadecyl sulfide
 42205-08-3 42841-80-5, Pentyl propyl sulfide 51750-65-3,
 2,2,4,4-Tetramethylhexane 52896-87-4, 4-Isopropylheptane 52896-88-5,
 4-Ethyl-2-methylheptane 52896-89-6, 4-Ethyl-3-methylheptane
 52896-90-9, 3-Ethyl-5-methylheptane 52896-91-0, 3-Ethyl-4-methylheptane
 52896-92-1, 2,2,3-Trimethylheptane 52896-93-2, 2,3,3-Trimethylheptane
 52896-95-4, 2,3,4-Trimethylheptane 52896-99-8,
 4-Ethyl-2,2-dimethylhexane 52897-00-4, 3-Ethyl-2,3-dimethylhexane
 52897-01-5, 4-Ethyl-2,3-dimethylhexane 52897-03-7,
 4-Ethyl-2,4-dimethylhexane 52897-04-8, 3-Ethyl-2,5-dimethylhexane
 52897-05-9, 4-Ethyl-3,3-dimethylhexane 52897-06-0,
 3-Ethyl-3,4-dimethylhexane 52897-08-2, 2,2,3,4-Tetramethylhexane
 52897-09-3, 2,2,3,5-Tetramethylhexane 52897-10-6,
 2,3,3,4-Tetramethylhexane 52897-11-7, 2,3,3,5-Tetramethylhexane
 52897-12-8, 2,3,4,4-Tetramethylhexane 52897-15-1,
 2,3,4,5-Tetramethylhexane 52897-16-2, 3,3-Diethyl-2-methylpentane
 52897-17-3, 3-Ethyl-2,2,3-trimethylpentane 52897-18-4,
 3-Ethyl-2,2,4-trimethylpentane 52897-19-5,
 3-Ethyl-2,3,4-trimethylpentane 53161-72-1, 1,2-Diiodobutane
 53193-22-9, 1-Heptadecanethiol 53193-23-0, 1-Nonadecanethiol
 54105-66-7, 1-Cyclohexylundecane 59973-07-8, Methyl nonyl sulfide
 59973-08-9, Ethyl nonyl sulfide 62103-66-6, Nonyl propyl sulfide

62155-09-3, Methyl tridecyl sulfide 62155-10-6, Methyl pentadecyl sulfide 62155-11-7, Heptadecyl methyl sulfide 62155-12-8, Methyl nonadecyl sulfide 64919-20-6, Ethyl pentadecyl sulfide 66271-54-3, Ethyl tetradecyl sulfide 66271-55-4, Propyl tridecyl sulfide 66271-81-6, Ethyl tridecyl sulfide 66271-82-7, Dodecyl propyl sulfide 66271-83-8, Butyl undecyl sulfide 66292-31-7, Ethyl hexadecyl sulfide 66292-32-8, Pentadecyl propyl sulfide 66292-33-9, Butyl tetradecyl sulfide 66359-40-8, Ethyl heptadecyl sulfide 66359-41-9, Hexadecyl propyl sulfide 66359-42-0, Butyl pentadecyl sulfide 66455-35-4, Heptadecyl propyl sulfide 66577-30-8, Ethyl undecyl sulfide 66577-31-9, Decyl propyl sulfide 66577-32-0, Butyl nonyl sulfide 66577-61-5, Propyl tetradecyl sulfide 66577-62-6, Butyl tridecyl sulfide 66826-84-4, Propyl undecyl sulfide
 RL: PRP (Properties)
 (critical consts. of, selected values for)

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TI Enthalpy of formation for 700 major organic compounds

AU Yaws, Carl L.; Chiang, P. Y.

CS Lamar Univ., Beaumont, TX, USA

SO Chemical Engineering (New York, NY, United States) (1988), 95(13), 81-8
 CODEN: CHEEA3; ISSN: 0009-2460

DT Journal

LA English

CC 69-2 (Thermodynamics, Thermochemistry, and Thermal Properties)

AB A correlation method for the ideal-gas heat of formation as function of temperature was applied and values were calculated for 700 organic compds.

The calculated

values were compared to the exptl. data and an average deviation of 0.2 kJ/mol was found. Consts. for the correlation equation, $\Delta H_f = A + BT + CT^2$, with ΔH_f in kJ/mol and T in °K, are tabulated for 700 compds. Values at 298 K are also listed.

ST heat formation org compd ideal gas

IT Heat of formation

(calcn. of, of organic compds. in ideal gas state, equation for)

IT Organic compounds, properties

RL: PRP (Properties); FORM (Formation, nonpreparative)

(heats of formation of, in ideal gas state, equation for calcn. of)

IT 50-00-0, Formaldehyde, properties 56-23-5, Carbon tetrachloride, properties 60-29-7, Ethyl ether, properties 62-53-3, Aniline, properties 64-17-5, Ethylalcohol, properties 64-18-6, Formic acid, properties 64-19-7, Acetic acid, properties 65-85-0, Benzoic acid, properties 66-25-1, Hexanal 67-56-1, Methanol, properties 67-63-0, 2-Propanol, properties 67-64-1, Acetone, properties 67-66-3, properties 67-72-1, Hexachloroethane 71-23-8, Propyl alcohol, properties 71-36-3, Butyl alcohol, properties 71-41-0, Pentyl alcohol, properties 71-43-2, Benzene, properties 74-82-8, Methane, properties 74-83-9, Bromomethane, properties 74-84-0, Ethane, properties 74-85-1, Ethylene, properties 74-86-2, Ethyne, properties 74-87-3, Chloromethane, properties 74-88-4, Iodomethane, properties 74-89-5, Methylamine, properties 74-93-1, Methanethiol, properties 74-96-4 74-98-6, Propane, properties 74-99-7, 1-Propyne 75-00-3, Chloroethane 75-01-4, properties 75-02-5, Fluoroethene 75-03-6, Iodoethane 75-04-7, Ethylamine, properties 75-05-8, Acetonitrile, properties 75-07-0, Acetaldehyde, properties 75-08-1, Ethanethiol 75-09-2, properties 75-10-5, Difluoromethane 75-11-6, Diiodomethane 75-15-0, Carbon disulfide, properties 75-18-3, Methyl sulfide 75-19-4, Cyclopropane 75-21-8, Ethylene oxide, properties 75-26-3,

2-Bromopropane 75-28-5 75-29-6, 2-Chloropropane 75-30-9,
 2-Iodopropane 75-33-2, 2-Propanethiol 75-34-3 75-35-4,
 1,1-Dichloroethene, properties 75-36-5, Acetyl chloride 75-37-6,
 1,1-Difluoroethane 75-38-7 75-43-4, Dichlorofluoromethane 75-45-6
 75-46-7, Trifluoromethane 75-47-8, Triiodomethane 75-50-3,
 Trimethylamine, properties 75-52-5, Nitromethane, properties 75-56-9,
 Propylene oxide, properties 75-64-9, tert-Butylamine, properties
 75-65-0, properties 75-66-1, 2-Methyl-2-propanethiol 75-69-4,
 Trichlorofluoromethane 75-71-8, Dichlorodifluoromethane 75-72-9,
 Chlorotrifluoromethane 75-73-0, Carbon tetrafluoride 75-83-2,
 2,2-Dimethylbutane 75-85-4, tert-Pentyl alcohol 76-01-7,
 Pentachloroethane 76-13-1, 1,1,2-Trichlorotrifluoroethane 76-14-2
 76-15-3, Chloropentafluoroethane 76-16-4, Hexafluoroethane 78-75-1,
 1,2-Dibromopropane 78-76-2, 2-Bromobutane 78-78-4 78-79-5,
 2-Methyl-1,3-butadiene, properties 78-82-0, Isobutyronitrile 78-86-4,
 2-Chlorobutane 78-87-5, 1,2-Dichloropropane 78-92-2, sec-Butyl alcohol
 78-93-3, 2-Butanone, properties 79-00-5, 1,1,2-Trichloroethane
 79-01-6, Trichloroethene, properties 79-10-7, Acrylic acid, properties
 79-24-3, Nitroethane 79-29-8, 2,3-Dimethylbutane 79-34-5,
 1,1,2,2-Tetrachloroethane 79-46-9, 2-Nitropropane 86-89-5,
 1-Pentylnaphthalene 87-85-4, Hexamethylbenzene 90-12-0,
 1-Methylnaphthalene 91-20-3, Naphthalene, properties 91-57-6,
 2-Methylnaphthalene 92-52-4, Biphenyl, properties 93-22-1,
 2-Pentylnaphthalene 95-47-6, o-Xylene, properties 95-48-7, o-Cresol,
 properties 95-50-1, o-Dichlorobenzene 95-63-6, 1,2,4-Trimethylbenzene
 95-93-2, 1,2,4,5-Tetramethylbenzene 96-14-0, 3-Methylpentane 96-18-4,
 1,2,3-Trichloropropane 96-37-7, Methylcyclopentane 98-08-8 98-82-8,
 Cumene 98-83-9, properties 100-41-4, Ethylbenzene, properties
 100-42-5, Styrene, properties 100-47-0, Benzonitrile, properties
 100-80-1, m-Methylstyrene 102-25-0, 1,3,5-Triethylbenzene 103-65-1,
 Propylbenzene 104-51-8, Butylbenzene 104-72-3, 1-Phenyldecane
 105-05-5, p-Diethylbenzene 106-42-3, p-Xylene, properties 106-44-5,
 properties 106-46-7, p-Dichlorobenzene 106-93-4, 1,2-Dibromoethane
 106-94-5, 1-Bromopropane 106-95-6, 3-Bromo-1-propene, properties
 106-97-8, Butane, properties 106-98-9, 1-Butene, properties 106-99-0,
 1,3-Butadiene, properties 107-00-6, 1-Butyne 107-03-9, 1-Propanethiol
 107-05-1, 3-Chloro-1-propene 107-06-2, 1,2-Dichloroethane, properties
 107-08-4, 1-Iodopropane 107-10-8, Propylamine, properties 107-12-0,
 Propionitrile 107-13-1, 2-Propenenitrile, properties 107-18-6, Allyl
 alcohol, properties 107-21-1, Ethylene glycol, properties 107-31-3,
 Methyl formate 107-83-5, 2-Methylpentane 107-84-6,
 1-Chloro-3-methylbutane 107-87-9, 2-Pentanone 108-03-2, 1-Nitropropane
 108-08-7, 2,4-Dimethylpentane 108-20-3, Isopropyl ether 108-24-7,
 Acetic anhydride 108-38-3, m-Xylene, properties 108-39-4, properties
 108-67-8, Mesitylene, properties 108-86-1, Bromobenzene, properties
 108-87-2, Methylcyclohexane 108-88-3, Toluene, properties 108-90-7,
 Chlorobenzene, properties 108-93-0, Cyclohexanol, properties 108-94-1,
 Cyclohexanone, properties 108-95-2, Phenol, properties 108-98-5,
 Benzenethiol, properties 108-99-6, 3-Picoline 109-06-8, 2-Picoline
 109-65-9, 1-Bromobutane 109-66-0, Pentane, properties 109-67-1,
 1-Pentene 109-69-3, 1-Chlorobutane 109-73-9, 1-Butanamine, properties
 109-74-0, Butyronitrile 109-79-5, 1-Butanethiol 109-89-7,
 Diethylamine, properties 110-00-9, Furan 110-01-0, Thiacyclopentane
 110-02-1, Thiophene 110-53-2, 1-Bromopentane 110-54-3, Hexane,
 properties 110-62-3, Valeraldehyde 110-66-7, 1-Pentanethiol
 110-81-6, Ethyl disulfide 110-82-7, Cyclohexane, properties 110-83-8,
 Cyclohexene, properties 110-86-1, Pyridine, properties 111-27-3, Hexyl
 alcohol, properties 111-31-9, 1-Hexanethiol 111-43-3, Propyl ether
 111-47-7, Propyl sulfide 111-65-9, Octane, properties 111-66-0,
 1-Octene 111-70-6, Heptyl alcohol 111-71-7, Heptanal 111-84-2,
 Nonane 111-87-5, Octyl alcohol, properties 111-88-6, 1-Octanethiol
 112-30-1, Decyl alcohol 112-31-2, Decanal 112-40-3, Dodecane

112-41-4, 1-Dodecene 112-42-5, Undecyl alcohol 112-51-6, Pentyl disulfide 112-53-8, Dodecyl alcohol 112-55-0, 1-Dodecanethiol 112-70-9, 1-Tridecanol 112-72-1, 1-Tetradecanol 112-88-9, 1-Octadecene 112-92-5, 1-Octadecanol 112-95-8, Eicosane 115-07-1, Propene, properties 115-10-6, Methyl ether 115-11-7, 2-Methylpropene, properties 115-25-3, Octafluorocyclobutane 116-14-3, Tetrafluoroethene, properties 118-74-1, Hexachlorobenzene 121-44-8, Triethylamine, properties 123-01-3, 1-Phenyldodecane 123-02-4, 1-Phenyltridecane 123-38-6, Propionaldehyde, properties 123-72-8, Butyraldehyde 123-75-1, Pyrrolidine, properties 123-91-1, p-Dioxane, properties 124-11-8, 1-Nonene 124-13-0, Octanal 124-18-5, Decane 124-19-6, Nonanal 124-38-9, Carbon dioxide, properties 124-40-3, properties 127-18-4, Tetrachloroethene, properties 135-01-3, o-Diethylbenzene 141-78-6, Ethyl acetate, properties 141-93-5, m-Diethylbenzene 142-28-9, 1,3-Dichloropropane 142-29-0, Cyclopentene 142-82-5, Heptane, properties 142-96-1, Butyl ether 143-08-8, Nonyl alcohol 143-10-2, 1-Decanethiol 151-56-4, Ethylenimine, properties 156-59-2, cis-1,2-Dichloroethene 156-60-5, trans-1,2-Dichloroethene 157-40-4, Spiropentane 275-51-4, Azulene 287-23-0, Cyclobutane 287-27-4, Thiacyclobutane 287-92-3, Cyclopentane

RL: PRP (Properties)

(heat of formation of, in ideal gas state, equation for calcn. of)

IT 291-64-5, Cycloheptane 292-64-8, Cyclooctane 352-32-9, p-Fluorotoluene 352-93-2, Ethylsulfide 353-36-6, Fluoroethane 359-11-5, Trifluoroethene 367-11-3, o-Difluorobenzene 372-18-9, m-Difluorobenzene 392-56-3, Hexafluorobenzene 420-12-2, Thiacyclopropane 420-26-8, 2-Fluoropropane 420-46-2, 1,1,1-Trifluoroethane 460-12-8, 1,3-Butadiyne 460-13-9, 1-Fluoropropane 460-19-5, Cyanogen 462-06-6, Fluorobenzene 463-49-0, 1,2-Propadiene 463-51-4, Ketene 463-58-1, Carbonyl sulfide 463-82-1 464-06-2, 2,2,3-Trimethylbutane 488-23-3, 1,2,3,4-Tetramethylbenzene 493-01-6, Decahydronaphthalene, cis 493-02-7, Decahydronaphthalene, trans 503-17-3, 2-Butyne 507-09-5, Thioacetic acid, properties 507-19-7, 2-Bromo-2-methylpropane 507-20-0, 2-Chloro-2-methylpropane 513-35-9, 2-Methyl-2-butene 513-36-0, 1-Chloro-2-methylpropane 513-44-0, 2-Methyl-1-propanethiol 513-53-1, 2-Butanethiol 526-73-8, 1,2,3-Trimethylbenzene 527-53-7, 1,2,3,5-Tetramethylbenzene 533-98-2, 1,2-Dibromobutane 536-74-3, Ethynylbenzene 538-68-1, Pentylbenzene 540-36-3, p-Difluorobenzene 540-54-5, 1-Chloropropane 540-67-0, Ethyl methyl ether 540-84-1, 2,2,4-Trimethylpentane 541-73-1, m-Dichlorobenzene 543-59-9, 1-Chloropentane 544-25-2, 1,3,5-Cycloheptatriene 544-40-1, Butyl sulfide 544-76-3, Hexadecane 554-14-3, 2-Methylthiophene 556-56-9 557-17-5, Methyl propyl ether 558-17-8, 2-Iodo-2-methylpropane 558-37-2, 3,3-Dimethyl-1-butene 560-21-4, 2,3,3-Trimethylpentane 562-49-2, 3,3-Dimethylpentane 563-16-6, 3,3-Dimethylhexane 563-45-1, 3-Methyl-1-butene 563-46-2, 2-Methyl-1-butene 563-78-0, 2,3-Dimethyl-1-butene 563-79-1, 2,3-Dimethyl-2-butene 564-02-3, 2,2,3-Trimethylpentane 565-59-3, 2,3-Dimethylpentane 565-75-3, 2,3,4-Trimethylpentane 571-58-4, 1,4-Dimethylnaphthalene 571-61-9, 1,5-Dimethylnaphthalene 573-98-8, 1,2-Dimethylnaphthalene 575-37-1, 1,7-Dimethylnaphthalene 575-41-7, 1,3-Dimethylnaphthalene 575-43-9, 1,6-Dimethylnaphthalene 581-40-8, 2,3-Dimethylnaphthalene 581-42-0, 2,6-Dimethylnaphthalene 582-16-1, 2,7-Dimethylnaphthalene 583-48-2, 3,4-Dimethylhexane 584-94-1, 2,3-Dimethylhexane 589-34-4, 3-Methylhexane 589-43-5, 2,4-Dimethylhexane 589-53-7, 4-Methylheptane 589-81-1, 3-Methylheptane 590-18-1 590-19-2, 1,2-Butadiene 590-35-2, 2,2-Dimethylpentane 590-66-9, 1,1-Dimethylcyclohexane 590-73-8, 2,2-Dimethylhexane 591-50-4, Iodobenzene 591-76-4, 2-Methylhexane 591-93-5, 1,4-Pentadiene 591-95-7, 1,2-Pentadiene 591-96-8, 2,3-Pentadiene 592-13-2, 2,5-Dimethylhexane 592-27-8, 2-Methylheptane 592-41-6, 1-Hexene, properties 592-76-7, 1-Heptene 593-45-3, Octadecane

593-53-3, Fluoromethane 593-60-2, Bromoethylene 593-70-4 594-20-7,
 2,2-Dichloropropane 594-36-5, 2-Chloro-2-methylbutane 594-51-4,
 2,3-Dibromo-2-methylbutane 594-82-1, 2,2,3,3-Tetramethylbutane
 598-23-2, 3-Methyl-1-butyne 598-25-4, 3-Methyl-1,2-butadiene 598-29-8,
 1,2-Diiodopropane 598-53-8, Methyl isopropyl ether 598-58-3, Methyl
 nitrate 600-24-8, 2-Nitrobutane 604-88-6, Hexaethylbenzene 605-01-6,
 Pentaethylbenzene 609-26-7, 3-Ethyl-2-methylpentane 611-14-3,
 o-Ethyltoluene 611-15-4, o-Methylstyrene 616-12-6,
 3-Methyl-2-pentene,trans 616-44-4, 3-Methylthiophene 617-78-7,
 3-Ethylpentane 619-99-8, 3-Ethylhexane 620-14-4, m-Ethyltoluene
 622-96-8, p-Ethyltoluene 622-97-9, p-Methylstyrene 624-29-3 624-64-6
 624-73-7, 1,2-Diiodoethane 624-89-5, Ethyl-methyl-sulfide 624-91-9,
 Methyl nitrite 624-92-0, Methyl disulfide 625-27-4, 2-Methyl-2-pentene
 625-58-1, Ethyl nitrate 625-80-9, Isopropyl sulfide 627-05-4,
 1-Nitrobutane 627-13-4, Propyl nitrate 627-19-0, 1-Pentyne 627-20-3
 627-21-4, 2-Pentyne 628-29-5, Butyl methyl sulfide 628-71-7, 1-Heptyne
 629-05-0, 1-Octyne 629-19-6, Propyl disulfide 629-20-9,
 1,3,5,7-Cyclooctatetraene 629-45-8 629-50-5, Tridecane 629-59-4,
 Tetradecane 629-62-9, Pentadecane 629-65-2, Heptyl sulfide 629-73-2,
 1-Hexadecene 629-74-3, 1-Hexadecyne 629-76-5, 1-Pentadecanol
 629-78-7, Heptadecane 629-89-0, 1-Octadecyne 629-92-5, Nonadecane
 629-96-9, 1-Eicosanol 630-08-0, Carbon monoxide, properties 635-81-4,
 1,2,4,5-Tetraethylbenzene 638-04-0 638-46-0, Butyl ethyl sulfide
 642-32-0, 1,2,3,4-Tetraethylbenzene 646-04-8 674-76-0 689-97-4,
 1-Buten-3-yne 691-37-2, 4-Methyl-1-pentene 691-38-3 693-02-7,
 1-Hexyne 693-83-4, Decyl sulfide 693-89-0, 1-Methylcyclopentene
 700-12-9 760-20-3, 3-Methyl-1-pentene 760-21-4, 2-Ethyl-1-butene
 763-29-1, 2-Methyl-1-pentene 764-93-2, 1-Decyne 765-03-7, 1-Dodecyne
 765-10-6, 1-Tetradecyne 765-13-9, 1-Pentadecyne 765-27-5, 1-Eicosyne
 766-90-5, Propenylbenzene,cis 821-95-4, 1-Undecene 822-27-5, Octyl
 disulfide 822-35-5, Cyclobutene 822-50-4 871-83-0, 2-Methylnonane
 872-05-9, 1-Decene 872-10-6, Pentyl sulfide 873-66-5,
 Propenylbenzene,trans 877-44-1, 1,2,4-Triethylbenzene 921-47-1,
 2,3,4-Trimethylhexane 922-28-1, 3,4-Dimethylheptane 922-62-3,
 3-Methyl-2-pentene,cis 926-82-9, 3,5-Dimethylheptane 929-98-6, Nonyl
 sulfide 939-27-5, 2-Ethyl-naphthalene 1067-08-9,
 3-Ethyl-3-methylpentane 1067-20-5, 3,3-Diethylpentane 1068-19-5,
 4,4-Dimethylheptane 1068-87-7, 3-Ethyl-2,4-dimethylpentane 1069-53-0,
 2,3,5-Trimethylhexane 1070-87-7, 2,2,4,4-Tetramethylpentane 1071-26-7,
 2,2-Dimethylheptane 1071-81-4, 2,2,5,5-Tetramethylhexane 1072-05-5
 1072-16-8, 2,7-Dimethyloctane 1077-16-3, Hexylbenzene 1078-71-3,
 1-Phenylheptane 1081-77-2, 1-Phenylnonane 1120-21-4, Undecane
 1120-36-1, 1-Tetradecene 1120-62-3, 3-Methylcyclopentene 1127-76-0,
 1-Ethyl-naphthalene 1134-62-9, 2-Butyl-naphthalene 1186-53-4,
 2,2,3,4-Tetramethylpentane 1189-99-7, 2,5,5-Trimethylheptane
 1190-83-6, 2,2,6-Trimethylheptane 1192-18-3 1454-84-8, 1-Nonadecanol
 1454-85-9, 1-Heptadecanol 1455-21-6, 1-Nonanethiol 1459-09-2,
 1-Phenylhexadecane 1459-10-5, 1-Phenyltetradecane 1551-21-9, Isopropyl
 methyl sulfide 1574-41-0 1613-46-3, Butyl propyl sulfide 1613-51-0,
 Thiacyclohexane 1630-77-9, cis-1,2-Difluoroethene 1630-78-0,
 trans-1,2-Difluoroethene 1634-04-4, Methyl tert-butyl ether 1634-09-9,
 1-Butyl-naphthalene 1638-26-2, 1,1-Dimethylcyclopentane 1639-09-4,
 1-Heptanethiol 1640-89-7, Ethylcyclopentane 1678-91-7,
 Ethylcyclohexane 1678-92-8, Propylcyclohexane 1678-93-9,
 Butylcyclohexane 1679-07-8, Cyclopentanethiol 1679-09-0,
 2-Methyl-2-butanethiol 1712-64-7, Isopropyl nitrate 1741-83-9, Methyl
 pentyl sulfide 1759-58-6 1759-81-5, 4-Methylcyclopentene 1795-15-9,
 1-Cyclohexyloctane 1795-16-0, 1-Cyclohexyldecane 1795-17-1,
 1-Cyclohexyldodecane 1795-18-2, 1-Cyclohexyltetradecane 1795-20-6
 1795-21-7, 1-Cyclopentyldecane 1795-22-8, 1-Cyclopentyltetradecane
 RL: PRP (Properties)

(heat of formation of, in ideal gas state, equation for calcn. of)

IT 1795-26-2 1795-27-3 2004-70-8 2027-19-2, 2-Propylnaphthalene
 2040-95-1, Butylcyclopentane 2040-96-2, Propylcyclopentane 2051-30-1,
 2,6-Dimethyloctane 2079-95-0, 1-Tetradecanethiol 2131-18-2,
 1-Phenylpentadecane 2189-60-8, 1-Phenyloctane 2207-01-4 2207-03-6
 2207-04-7 2213-23-2, 2,4-Dimethylheptane 2216-30-0,
 2,5-Dimethylheptane 2216-32-2, 4-Ethylheptane 2216-33-3,
 3-Methyloctane 2216-34-4, 4-Methyloctane 2243-98-3, 1-Undecyne
 2437-56-1, 1-Tridecene 2532-58-3 2613-61-8, 2,4,6-Trimethylheptane
 2690-08-6, Octyl sulfide 2765-18-6, 1-Propylnaphthalene 2851-83-4,
 Dodecyl ethyl sulfide 2882-98-6, 1-Cyclopentylnonane 2883-02-5,
 1-Cyclohexylnonane 2885-00-9, 1-Octadecanethiol
 2917-26-2, 1-Hexadecanethiol 3074-71-3, 2,3-Dimethylheptane
 3074-75-7, 4-Ethyl-2-methylhexane 3074-76-8, 3-Ethyl-3-methylhexane
 3074-77-9, 3-Ethyl-4-methylhexane 3129-90-6, Isothiocyanic acid
 3178-29-8, 4-Propylheptane 3221-61-2, 2-Methyloctane 3452-07-1,
 1-Eicosene 3452-09-3, 1-Nonyne 3522-94-9, 2,2,5-Trimethylhexane
 3698-89-3, Dodecyl methyl sulfide 3698-93-9, Octyl propyl sulfide
 3698-94-0, Ethyl octyl sulfide 3698-95-1, Methyl octyl sulfide
 3741-00-2 3877-15-4, Methyl propyl sulfide 4032-86-4,
 3,3-Dimethylheptane 4032-92-2, 2,4,4-Trimethylheptane 4032-93-3,
 2,3,6-Trimethylheptane 4032-94-4, 2,4-Dimethyloctane 4050-45-7,
 2-Hexene,trans 4110-44-5, 3,3-Dimethyloctane 4110-50-3, Ethyl propyl
 sulfide 4292-75-5, 1-Cyclohexylhexane 4292-92-6 4485-77-2, Nonyl
 disulfide 4669-01-6, 1-Cyclopentylpentadecane 4753-80-4,
 Thiacycloheptane 5171-84-6, 3,3,4,4-Tetramethylhexane 5332-52-5,
 1-Undecanethiol 5408-86-6, 2,3-Dibromobutane 5617-41-4 5617-42-5,
 1-Cyclopentylheptane 5634-30-0, 1-Cyclopentyldecane 5881-17-4,
 3-Ethylhexane 5911-04-6, 3-Methylnonane 6006-33-3,
 1-Cyclohexyltridecane 6006-34-4, 1-Cyclopentyltridecane 6006-95-7,
 1-Cyclohexylpentadecane 6163-66-2, tert-Butyl ether 6294-31-1, Hexyl
 sulfide 6742-54-7, 1-Phenylundecane 6765-39-5, 1-Heptadecene
 6785-23-5, 1-Cyclopentylundecane 6812-38-0, 1-Cyclohexylhexadecane
 6812-39-1, 1-Cyclopentylhexadecane 6863-58-7, sec-Butyl ether
 6876-18-2, 3-Isopropyl-2-methylhexane 6876-23-9 7146-60-3,
 2,3-Dimethyloctane 7154-79-2 7154-80-5, 3,3,5-Trimethylheptane
 7220-26-0, 3-Ethyl-2,4-dimethylhexane 7289-44-3, Methyl undecyl sulfide
 7289-45-4, Methyl tetradecyl sulfide 7309-44-6, Ethyl hexyl sulfide
 7372-86-3, 2-Ethyl-6-methylnaphthalene 7642-09-3, 3-Hexene,cis
 7688-21-3 10496-15-8, Hexyl disulfide 10496-16-9, Heptyl disulfide
 10496-18-1, Decyl disulfide 13269-52-8, 3-Hexene,trans 13360-61-7,
 1-Pentadecene 13373-97-2, 1-Eicosanethiol 13475-78-0,
 5-Ethyl-2-methylheptane 13475-79-1, 2,4-Dimethyl-3-isopropylpentane
 13475-81-5, 2,2,3,3-Tetramethylhexane 13952-84-6, sec-Butylamine
 14676-29-0, 3-Ethyl-2-methylheptane 14720-74-2, 2,2,4-Trimethylheptane
 15869-80-4, 3-Ethylheptane 15869-85-9, 5-Methylnonane 15869-86-0,
 4-Ethylhexane 15869-87-1, 2,2-Dimethyloctane 15869-89-3,
 2,5-Dimethyloctane 15869-92-8, 3,4-Dimethyloctane 15869-93-9,
 3,5-Dimethyloctane 15869-94-0, 3,6-Dimethyloctane 15869-95-1,
 4,4-Dimethyloctane 15869-96-2, 4,5-Dimethyloctane 16747-25-4,
 2,2,3-Trimethylhexane 16747-26-5, 2,2,4-Trimethylhexane 16747-28-7,
 2,3,3-Trimethylhexane 16747-30-1, 2,4,4-Trimethylhexane 16747-31-2,
 3,3,4-Trimethylhexane 16747-32-3, 3-Ethyl-2,2-dimethylpentane
 16747-33-4, 3-Ethyl-2,3-dimethylpentane 16747-38-9,
 2,3,3,4-Tetramethylpentane 16747-42-5, 2,2,4,5-Tetramethylhexane
 16747-44-7, 2,2,3,3,4-Pentamethylpentane 16747-45-8,
 2,2,3,4,4-Pentamethylpentane 16789-46-1, 3-Ethyl-2-methylhexane
 16900-07-5, Butyl octyl sulfide 16900-08-6, Butyl dodecyl sulfide
 16967-04-7, Butyl hexyl sulfide 17059-55-1, 2-Ethyl-7-methylnaphthalene
 17301-94-9, 4-Methylnonane 17302-01-1, 3-Ethyl-3-methylheptane
 17302-02-2, 3,3-Diethylhexane 17302-04-4, 4-Ethyl-4-methylheptane
 17348-59-3, Isopropyl tert-butyl ether 18435-45-5, 1-Nonadecene
 18437-89-3, Butyl hexadecyl sulfide 19313-57-6, Butyl decyl sulfide

19313-61-2, Decyl ethyl sulfide 19398-77-7, 3,4-Diethylhexane
 19484-26-5, 1-Tridecanethiol 20278-84-6, 2,4,5-Trimethylheptane
 20278-85-7, 2,3,5-Trimethylheptane 20278-87-9, 3,3,4-Trimethylheptane
 20278-88-0, 3,4,4-Trimethylheptane 20291-60-5, Hexyl methyl sulfide
 20291-61-6, Heptyl methyl sulfide 20291-91-2, 3-Ethyl-2,2-dimethylhexane
 20291-95-6, 2,2,5-Trimethylheptane 22438-39-7, Decyl methyl sulfide
 24768-42-1, Butyl pentyl sulfide 24768-43-2, Hexyl propyl sulfide
 24768-44-3, Ethyl heptyl sulfide 24768-46-5, Heptyl propyl sulfide
 25276-70-4, 1-Pentadecanethiol 26158-99-6, Ethyl pentyl sulfide
 26186-00-5, 1-Heptadecyne 26186-01-6, 1-Nonadecyne 26186-02-7,
 1-Tridecyne 27563-68-4, Hexadecyl methyl sulfide 31032-94-7,
 2-Ethyl-3-methylnaphthalene 36653-82-4, 1-Hexadecanol 38842-05-6,
 1,2,3,5-Tetraethylbenzene 40289-98-3, Methyl octadecyl sulfide
 40813-84-1, Butyl heptyl sulfide 41947-84-6, Ethyl octadecyl sulfide
 42205-08-3 42841-80-5, Pentyl propyl sulfide 51750-65-3,
 2,2,4,4-Tetramethylhexane 52896-87-4, 4-Isopropylheptane 52896-88-5,
 4-Ethyl-2-methylheptane 52896-89-6, 4-Ethyl-3-methylheptane
 52896-90-9, 3-Ethyl-5-methylheptane 52896-91-0, 3-Ethyl-4-methylheptane
 52896-92-1, 2,2,3-Trimethylheptane 52896-93-2, 2,3,3-Trimethylheptane
 52896-95-4, 2,3,4-Trimethylheptane 52896-99-8,
 4-Ethyl-2,2-dimethylhexane 52897-00-4, 3-Ethyl-2,3-dimethylhexane
 52897-01-5, 4-Ethyl-2,3-dimethylhexane 52897-03-7,
 4-Ethyl-2,4-dimethylhexane 52897-04-8, 3-Ethyl-2,5-dimethylhexane
 52897-05-9, 4-Ethyl-3,3-dimethylhexane 52897-06-0,
 3-Ethyl-3,4-dimethylhexane 52897-08-2, 2,2,3,4-Tetramethylhexane
 52897-09-3, 2,2,3,5-Tetramethylhexane 52897-10-6,
 2,3,3,4-Tetramethylhexane 52897-11-7, 2,3,3,5-Tetramethylhexane
 52897-12-8, 2,3,4,4-Tetramethylhexane 52897-15-1,
 2,3,4,5-Tetramethylhexane 52897-16-2, 3,3-Diethyl-2-methylpentane
 52897-17-3, 3-Ethyl-2,2,3-trimethylpentane 52897-18-4,
 3-Ethyl-2,2,4-trimethylpentane 52897-19-5,
 3-Ethyl-2,3,4-trimethylpentane 53161-72-1, 1,2-Diiodobutane
 53193-22-9, 1-Heptadecanethiol 53193-23-0, 1-Nonadecanethiol
 54105-66-7, 1-Cyclohexylundecane 59973-07-8, Methyl nonyl sulfide
 59973-08-9, Ethyl nonyl sulfide 62103-66-6, Nonyl propyl sulfide
 62155-09-3, Methyl tridecyl sulfide 62155-10-6, Methyl pentadecyl
 sulfide 62155-11-7, Heptadecyl methyl sulfide 62155-12-8, Methyl
 nonadecyl sulfide 64919-20-6, Ethyl pentadecyl sulfide 66271-54-3,
 Ethyl tetradecyl sulfide 66271-55-4, Propyl tridecyl sulfide
 66271-81-6, Ethyl tridecyl sulfide 66271-82-7, Dodecyl propyl sulfide
 66271-83-8, Butyl undecyl sulfide 66292-31-7, Ethyl hexadecyl sulfide
 66292-32-8, Pentadecyl propyl sulfide 66292-33-9, Butyl tetradecyl
 sulfide 66359-40-8, Ethyl heptadecyl sulfide 66359-41-9, Hexadecyl
 propyl sulfide 66359-42-0, Butyl pentadecyl sulfide 66455-35-4,
 Heptadecyl propyl sulfide 66577-30-8, Ethyl undecyl sulfide
 66577-31-9, Decyl propyl sulfide 66577-32-0, Butyl nonyl sulfide
 66577-61-5, Propyl tetradecyl sulfide 66577-62-6, Butyl tridecyl sulfide
 66826-84-4, Propyl undecyl sulfide

RL: PRP (Properties)

(heat of formation of, in ideal gas state, equation for calcn. of)

L23 ANSWER 7 OF 10 CAPLUS COPYRIGHT 2009 ACS on STN

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TI Heat capacities for 700 compounds

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CS Lamar Univ., Beaumont, TX, USA

SO Chemical Engineering (New York, NY, United States) (1988), 95(7), 91-8

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LA English

CC 69-2 (Thermodynamics, Thermochemistry, and Thermal Properties)

AB Consts. (A, B, C, D) for the correlation equation $C_p = A + B + T + C + T^2 + D + T^3$ (where C_p is the heat capacity in J/mol. K and T is the temperature in K) are tabulated for (mostly) 700 organic compds. The consts. were obtained by applying a generalized least-squares computer program to data found in the literature. The average deviation claimed for the calculated values (from the original data) is 0.15%.

ST heat capacity org compd equation

IT Heat capacity
(calcn. of, of chemical compds., equation for)

IT Organic compounds, properties
RL: PRP (Properties)
(heat capacities of, calcn. of)

IT 50-00-0, Formaldehyde, properties 56-23-5, Carbon tetrachloride, properties 60-29-7, Ethyl ether, properties 62-53-3, Aniline, properties 64-17-5, Ethyl alcohol, properties 64-18-6, Formic acid, properties 64-19-7, Acetic acid, properties 65-85-0, Benzoic acid, properties 66-25-1, Hexanal 67-56-1, Methanol, properties 67-63-0, 2-Propanol, properties 67-64-1, Acetone, properties 67-66-3, properties 67-72-1, Hexachloroethane 71-23-8, Propyl alcohol, properties 71-36-3, Butyl alcohol, properties 71-41-0, Pentyl alcohol, properties 71-43-2, Benzene, properties 74-82-8, Methane, properties 74-83-9, Bromomethane, properties 74-84-0, Ethane, properties 74-85-1, Ethylene, properties 74-86-2, Ethyne, properties 74-87-3, Chloromethane, properties 74-88-4, Iodomethane, properties 74-89-5, Methylamine, properties 74-93-1, Methanethiol, properties 74-96-4 74-98-6, Propane, properties 74-99-7, 1-Propyne 75-00-3, Chloroethane 75-01-4, properties 75-02-5, Fluoroethene 75-03-6, Iodoethane 75-04-7, Ethylamine, properties 75-05-8, Acetonitrile, properties 75-07-0, Acetaldehyde, properties 75-09-2, properties 75-10-5, Difluoromethane 75-11-6, Diiodomethane 75-15-0, Carbon disulfide, properties 75-18-3, Methyl sulfide 75-19-4, Cyclopropane 75-21-8, Ethylene oxide, properties 75-26-3, 2-Bromopropane 75-28-5 75-29-6, 2-Chloropropane 75-30-9, 2-Iodopropane 75-33-2, 2-Propanethiol 75-34-3 75-35-4, 1,1-Dichloroethene, properties 75-36-5, Acetyl chloride 75-37-6, 1,1-Difluoroethane 75-38-7 75-43-4, Dichlorodifluoromethane 75-45-6, Chlorodifluoromethane 75-46-7, Trifluoromethane 75-47-8, Triiodomethane 75-50-3, Trimethylamine, properties 75-52-5, Nitromethane, properties 75-56-9, Propylene oxide, properties 75-64-9, tert-Butylamine, properties 75-65-0, properties 75-66-1, 2-Methyl-2-propanethiol 75-69-4, Trichlorofluoromethane 75-71-8, Dichlorodifluoromethane 75-72-9, Chlorotrifluoromethane 75-73-0, Carbon tetrafluoride 75-83-2, 2,2-Dimethylbutane 75-85-4, tert-Pentyl alcohol 76-01-7 76-13-1, 1,1,2-Trichlorotrifluoroethane 76-14-2 76-15-3, Chloropentafluoroethane 76-16-4, Hexafluoroethane 78-75-1, 1,2-Dibromopropane 78-76-2, 2-Bromobutane 78-79-5, 2-Methyl-1,3-butadiene, properties 78-82-0, Isobutyronitrile 78-86-4, 2-Chlorobutane 78-87-5, 1,2-Dichloropropane 78-92-2, sec-Butyl alcohol 78-93-3, 2-Butanone, properties 79-00-5, 1,1,2-Trichloroethane 79-01-6, Trichloroethene, properties 79-10-7, Acrylic acid, properties 79-24-3, Nitroethane 79-29-8, 2,3-Dimethylbutane 79-34-5, 1,1,2,2-Tetrachloroethane 79-46-9, 2-Nitropropane 86-89-5, 1-Pentylnaphthalene 87-85-4, Hexamethylbenzene 90-12-0, 1-Methylnaphthalene 91-20-3, Naphthalene, properties 91-57-6, 2-Methylnaphthalene 92-52-4, Biphenyl, properties 93-22-1, 2-Pentylnaphthalene 95-47-6, o-Xylene, properties 95-48-7, o-Cresol, properties 95-50-1, o-Dichlorobenzene 95-63-6, 1,2,4-Trimethylbenzene 95-93-2, 1,2,4,5-Tetramethylbenzene 96-14-0, 3-Methylpentane 96-18-4, 1,2,3-Trichloropropane 96-37-7, Methylcyclopentane 98-08-8 98-82-8, Cumene 98-83-9, properties 100-41-4, Ethylbenzene, properties 100-42-5, Styrene, properties 100-47-0, Benzonitrile, properties

100-80-1, m-Methylstyrene 102-25-0, 1,3,5-Triethylbenzene 103-65-1, Propylbenzene 104-51-8, Butylbenzene 104-72-3, 1-Phenyldecane 105-05-5, p-Diethylbenzene 106-42-3, p-Xylene, properties 106-44-5, properties 106-46-7, p-Dichlorobenzene 106-93-4, 1,2-Dibromoethane 106-94-5, 1-Bromopropane 106-95-6, 3-Bromo-1-propene, properties 106-97-8, Butane, properties 106-98-9, 1-Butene, properties 106-99-0, 1,3-Butadiene, properties 107-00-6, 1-Butyne 107-03-9, 1-Propanethiol 107-05-1, 3-Chloro-1-propene 107-06-2, 1,2-Dichloroethane, properties 107-08-4, 1-Iodopropane 107-10-8, Propylamine, properties 107-12-0, Propionitrile 107-13-1, 2-Propenenitrile, properties 107-18-6, Allyl alcohol, properties 107-21-1, Ethylene glycol, properties 107-31-3, Methyl formate 107-83-5, 2-Methylpentane 107-84-6, 1-Chloro-3-methylbutane 107-87-9, 2-Pentanone 108-03-2, 1-Nitropropane 108-08-7, 2,4-Dimethylpentane 108-20-3, Isopropyl ether 108-24-7, Acetic anhydride 108-38-3, m-Xylene, properties 108-39-4, properties 108-67-8, properties 108-86-1, Bromobenzene, properties 108-87-2, Methylcyclohexane 108-88-3, Toluene, properties 108-90-7, Chlorobenzene, properties 108-93-0, Cyclohexanol, properties 108-94-1, Cyclohexanone, properties 108-95-2, Phenol, properties 108-98-5, Benzenethiol, properties 108-99-6, 3-Picoline 109-06-8, 2-Picoline 109-65-9, 1-Bromobutane 109-66-0, Pentane, properties 109-67-1, 1-Pentene 109-69-3, 1-Chlorobutane 109-73-9, 1-Butanamine, properties 109-74-0, Butyronitrile 109-79-5, 1-Butanethiol 109-89-7, Diethylamine, properties 110-00-9, Furan 110-01-0, Thiacyclopentane 110-02-1, Thiophene 110-53-2, 1-Bromopentane 110-54-3, Hexane, properties 110-62-3, Valeraldehyde 110-66-7, 1-Pentanethiol 110-81-6, Ethyl disulfide 110-82-7, Cyclohexane, properties 110-83-8, Cyclohexene, properties 110-86-1, Pyridine, properties 111-27-3, Hexyl alcohol, properties 111-31-9, 1-Hexanethiol 111-43-3, Propyl ether 111-47-7, Propyl sulfide 111-65-9, Octane, properties 111-66-0, 1-Octene 111-70-6, Heptyl alcohol 111-71-7, Heptanal 111-84-2, Nonane 111-87-5, Octyl alcohol, properties 111-88-6, 1-Octanethiol 112-30-1, Decyl alcohol 112-31-2, Decanal 112-40-3, Dodecane 112-41-4, 1-Dodecene 112-42-5, Undecyl alcohol 112-51-6 112-53-8, Dodecyl alcohol 112-55-0, 1-Dodecanethiol 112-70-9, 1-Tridecanol 112-72-1, 1-Tetradecanol 112-88-9, 1-Octadecene 112-92-5, 1-Octadecanol 112-95-8, Eicosane 115-07-1, Propene, properties 115-10-6, Methyl ether 115-11-7, 2-Methylpropene, properties 115-25-3, Octafluorocyclobutane 116-14-3, Tetrafluoroethene, properties 118-74-1, Hexachlorobenzene 121-44-8, Triethylamine, properties 123-01-3, 1-Phenyldodecane 123-02-4, 1-Phenyltridecane 123-38-6, Propionaldehyde, properties 123-72-8, Butyraldehyde 123-75-1, Pyrrolidine, properties 123-91-1, p-Dioxane, properties 124-11-8, 1-Nonene 124-13-0, Octanal 124-18-5, Decane 124-19-6, Nonanal 124-38-9, Carbon dioxide, properties 124-40-3, properties 127-18-4, Tetrachloroethene, properties 135-01-3, o-Diethylbenzene 141-78-6, Ethyl acetate, properties 141-93-5, m-Diethylbenzene 142-28-9, 1,3-Dichloropropane 142-29-0, Cyclopentene 142-82-5, Heptane, properties 142-96-1, Butyl ether 143-08-8, Nonyl alcohol 143-10-2, 1-Decanethiol 151-56-4, Ethylenimine, properties 156-59-2, cis-1,2-Dichloroethene 156-60-5, trans-1,2-Dichloroethene 157-40-4, Spiropentane 275-51-4, Azulene 287-23-0, Cyclobutane 287-27-4, Thiacyclobutane 287-92-3, Cyclopentane 291-64-5, Cycloheptane 292-64-8, Cyclooctane
 RL: PRP (Properties)
 (heat capacity of, equation for calcn. of)

IT 352-32-9, p-Fluorotoluene 352-93-2, Ethylsulfide 353-36-6, Fluoroethane 359-11-5, Trifluoroethene 367-11-3, o-Difluorobenzene 372-18-9, m-Difluorobenzene 392-56-3, Hexafluorobenzene 420-12-2, Thiacyclopentane 420-26-8, 2-Fluoropropane 420-46-2 460-12-8, 1,3-Butadiyne 460-13-9, 1-Fluoropropane 460-19-5, Cyanogen 462-06-6, Fluorobenzene 463-49-0, 1,2-Propadiene 463-51-4, Ketene 463-58-1,

Carbonyl sulfide 463-82-1, 2,2-Dimethylpropane 464-06-2,
 2,2,3-Trimethylbutane 488-23-3, 1,2,3,4-Tetramethylbenzene 493-01-6
 493-02-7 503-17-3, 2-Butyne 507-09-5, Thioacetic acid, properties
 507-19-7, 2-Bromo-2-methylpropane 507-20-0, 2-Chloro-2-methylpropane
 513-35-9, 2-Methyl-2-butene 513-36-0, 1-Chloro-2-methylpropane
 513-44-0, 2-Methyl-1-propanethiol 513-53-1, 2-Butanethiol 526-73-8,
 1,2,3-Trimethylbenzene 527-53-7, 1,2,3,5-Tetramethylbenzene 533-98-2,
 1,2-Dibromobutane 536-74-3, Ethynylbenzene 538-68-1, Pentylbenzene
 540-36-3, p-Difluorobenzene 540-54-5, 1-Chloropropane 540-67-0,
 Ethylmethyl ether 540-84-1, 2,2,4-Trimethylpentane 541-73-1,
 m-Dichlorobenzene 543-59-9, 1-Chloropentane 544-25-2,
 1,3,5-Cycloheptatriene 544-40-1, Butyl sulfide 544-76-3, Hexadecane
 554-14-3, 2-Methylthiophene 556-56-9, 3-Iodo-1-propene 557-17-5,
 Methyl propyl ether 558-17-8, 2-Iodo-2-methylpropane 558-37-2,
 3,3-Dimethyl-1-butene 560-21-4, 2,3,3-Trimethylpentane 562-49-2,
 3,3-Dimethylpentane 563-16-6, 3,3-Dimethylhexane 563-45-1,
 3-Methyl-1-butene 563-46-2, 2-Methyl-1-butene 563-78-0,
 2,3-Dimethyl-1-butene 563-79-1, 2,3-Dimethyl-2-butene 564-02-3,
 2,2,3-Trimethylpentane 565-59-3, 2,3-Dimethylpentane 565-75-3,
 2,3,4-Trimethylpentane 571-58-4, 1,4-Dimethylnaphthalene 571-61-9,
 1,5-Dimethylnaphthalene 573-98-8, 1,2-Dimethylnaphthalene 575-37-1,
 1,7-Dimethylnaphthalene 575-41-7, 1,3-Dimethylnaphthalene 575-43-9,
 1,6-Dimethylnaphthalene 581-40-8, 2,3-Dimethylnaphthalene 581-42-0,
 2,6-Dimethylnaphthalene 582-16-1, 2,7-Dimethylnaphthalene 583-48-2,
 3,4-Dimethylhexane 584-94-1, 2,3-Dimethylhexane 589-34-4,
 3-Methylhexane 589-43-5, 2,4-Dimethylhexane 589-53-7, 4-Methylheptane
 589-81-1, 3-Methylheptane 590-18-1 590-19-2, 1,2-Butadiene 590-35-2,
 2,2-Dimethylpentane 590-66-9, 1,1-Dimethylcyclohexane 590-73-8,
 2,2-Dimethylhexane 591-50-4, Iodobenzene 591-76-4, 2-Methylhexane
 591-93-5, 1,4-Pentadiene 591-95-7, 1,2-Pentadiene 591-96-8,
 2,3-Pentadiene 592-13-2, 2,5-Dimethylhexane 592-27-8, 2-Methylheptane
 592-41-6, 1-Hexene, properties 592-76-7, 1-Heptene 593-45-3,
 Octadecane 593-53-3, Fluoromethane 593-60-2, Bromoethylene 593-70-4
 594-20-7, 2,2-Dichloropropane 594-36-5, 2-Chloro-2-methylbutane
 594-51-4, 2,3-Dibromo-2-methylbutane 594-82-1, 2,2,3,3-Tetramethylbutane
 598-23-2, 3-Methyl-1-butyne 598-25-4, 3-Methyl-1,2-butadiene 598-29-8,
 1,2-Diiodopropane 598-53-8, Methyl isopropyl ether 598-58-3, Methyl
 nitrate 600-24-8, 2-Nitrobutane 604-88-6, Hexaethylbenzene 605-01-6,
 Pentaethylbenzene 609-26-7, 3-Ethyl-2-methylpentane 611-14-3,
 o-Ethyltoluene 611-15-4, o-Methylstyrene 616-12-6 616-44-4,
 3-Methylthiophene 617-78-7, 3-Ethylpentane 619-99-8, 3-Ethylhexane
 620-14-4, m-Ethyltoluene 622-96-8, p-Ethyltoluene 622-97-9,
 p-Methylstyrene 624-29-3 624-64-6 624-73-7, 1,2-Diiodoethane
 624-89-5, Ethylmethyl sulfide 624-91-9, Methyl nitrite 624-92-0,
 Methyl disulfide 625-27-4, 2-Methyl-2-pentene 625-58-1, Ethyl nitrate
 625-80-9, Isopropyl sulfide 627-05-4, 1-Nitrobutane 627-13-4, Propyl
 nitrate 627-19-0, 1-Pentyne 627-20-3 627-21-4, 2-Pentyne 628-29-5,
 Butylmethyl sulfide 628-71-7, 1-Heptyne 629-05-0, 1-Octyne 629-19-6,
 Propyl disulfide 629-20-9, 1,3,5,7-Cyclooctatetraene 629-45-8, Butyl
 disulfide 629-50-5, Tridecane 629-59-4, Tetradecane 629-62-9,
 Pentadecane 629-65-2, Heptyl sulfide 629-73-2, 1-Hexadecene
 629-74-3, 1-Hexadecyne 629-76-5, 1-Pentadecanol 629-78-7, Heptadecane
 629-89-0, 1-Octadecyne 629-92-5, Nonadecane 629-96-9, 1-Eicosanol
 630-08-0, Carbon monoxide, properties 635-81-4,
 1,2,4,5-Tetraethylbenzene 638-04-0 638-46-0, Butylethyl sulfide
 642-32-0, 1,2,3,4-Tetraethylbenzene 646-04-8 674-76-0 689-97-4,
 1-Buten-3-yne 691-37-2, 4-Methyl-1-pentene 691-38-3 693-02-7,
 1-Hexyne 693-83-4, Decyl sulfide 693-89-0, 1-Methylcyclopentene
 700-12-9 760-20-3, 3-Methyl-1-pentene 760-21-4, 2-Ethyl-1-butene
 763-29-1, 2-Methyl-1-pentene 764-93-2, 1-Decyne 765-03-7, 1-Dodecyne
 765-10-6, 1-Tetradecyne 765-13-9, 1-Pentadecyne 765-27-5, 1-Eicosyne
 766-90-5 821-95-4, 1-Undecene 822-27-5 822-35-5, Cyclobutene

822-50-4 871-83-0, 2-Methylnonane 872-05-9, 1-Decene 872-10-6,
 Pentyl sulfide 873-66-5 877-44-1, 1,2,4-Triethylbenzene 921-47-1,
 2,3,4-Trimethylhexane 922-28-1, 3,4-Dimethylheptane 922-62-3
 926-82-9, 3,5-Dimethylheptane 929-98-6, Nonyl sulfide 939-27-5,
 2-Ethyl-naphthalene 1067-08-9, 3-Ethyl-3-methylpentane 1067-20-5,
 3,3-Diethylpentane 1068-19-5, 4,4-Dimethylheptane 1068-87-7,
 3-Ethyl-2,4-dimethylpentane 1069-53-0, 2,3,5-Trimethylhexane
 1070-87-7, 2,2,4,4-Tetramethylpentane 1071-26-7, 2,2-Dimethylheptane
 1071-81-4, 2,2,5,5-Tetramethylhexane 1072-05-5, 2,6-Dimethylheptane
 1072-16-8, 2,7-Dimethyloctane 1077-16-3, Hexylbenzene 1078-71-3,
 1-Phenylheptane 1081-77-2, 1-Phenylnonane 1120-21-4, Undecane
 1120-36-1, 1-Tetradecene 1120-62-3, 3-Methylcyclopentene 1127-76-0,
 1-Ethyl-naphthalene 1134-62-9, 2-Butyl-naphthalene 1186-53-4,
 2,2,3,4-Tetramethylpentane 1189-99-7, 2,5,5-Trimethylheptane
 1190-83-6, 2,2,6-Trimethylheptane 1192-18-3 1454-84-8, 1-Nonadecanol
 1454-85-9, 1-Heptadecanol 1455-21-6, 1-Nonanethiol 1459-09-2,
 1-Phenylhexadecane 1459-10-5 1551-21-9, Isopropyl methyl sulfide
 1574-41-0 1613-46-3, Butylpropyl sulfide 1613-51-0, Thiacyclohexane
 1630-77-9, cis-1,2-Difluoroethene 1630-78-0, trans-1,2-Difluoroethene
 1634-04-4, Methyl tert-butyl ether 1634-09-9, 1-Butyl-naphthalene
 1638-26-2, 1,1-Dimethylcyclopentane 1639-09-4, 1-Heptanethiol
 1640-89-7, Ethylcyclopentane 1678-91-7, Ethylcyclohexane 1678-92-8,
 Propylcyclohexane 1678-93-9, Butylcyclohexane 1679-07-8,
 Cyclopentanethiol 1679-09-0, 2-Methyl-2-butanethiol 1712-64-7,
 Isopropyl nitrate 1741-83-9, Methylpentyl sulfide 1759-58-6
 1759-81-5, 4-Methylcyclopentene 1795-15-9, 1-Cyclohexyloctane
 1795-16-0 1795-17-1, 1-Cyclohexyldodecane 1795-18-2,
 1-Cyclohexyltetradecane 1795-20-6 1795-21-7 1795-22-8 1795-26-2
 1795-27-3

RL: PRP (Properties)

(heat capacity of, equation for calcn. of)

IT 2004-70-8 2027-19-2, 2-Propylnaphthalene 2040-95-1, Butylcyclopentane
 2040-96-2, Propylcyclopentane 2051-30-1, 2,6-Dimethyloctane 2079-95-0,
 1-Tetradecanethiol 2131-18-2 2189-60-8, 1-Phenyloctane 2207-01-4
 2207-03-6 2207-04-7 2213-23-2, 2,4-Dimethylheptane 2216-30-0,
 2,5-Dimethylheptane 2216-32-2, 4-Ethylheptane 2216-33-3,
 3-Methyloctane 2216-34-4, 4-Methyloctane 2243-98-3, 1-Undecyne
 2437-56-1, 1-Tridecene 2532-58-3 2613-61-8, 2,4,6-Trimethylheptane
 2690-08-6 2765-18-6, 1-Propylnaphthalene 2851-83-4 2882-98-6,
 1-Cyclopentylnonane 2883-02-5 2885-00-9, 1-Octadecanethiol
 2917-26-2, 1-Hexadecanethiol 3074-71-3, 2,3-Dimethylheptane
 3074-75-7, 4-Ethyl-2-methylhexane 3074-76-8, 3-Ethyl-3-methylhexane
 3074-77-9, 3-Ethyl-4-methylhexane 3129-90-6, Isothiocyanic acid
 3178-29-8, 4-Propylheptane 3221-61-2, 2-Methyloctane 3452-07-1,
 1-Eicosene 3452-09-3, 1-Nonyne 3522-94-9, 2,2,5-Trimethylhexane
 3698-89-3 3698-93-9 3698-94-0, Ethyloctyl sulfide 3698-95-1,
 Methyloctyl sulfide 3741-00-2 3877-15-4, Methyl propyl sulfide
 4032-86-4, 3,3-Dimethylheptane 4032-92-2, 2,4,4-Trimethylheptane
 4032-93-3, 2,3,6-Trimethylheptane 4032-94-4, 2,4-Dimethyloctane
 4050-45-7 4110-44-5, 3,3-Dimethyloctane 4110-50-3, Ethylpropyl sulfide
 4292-75-5 4292-92-6, Pentylcyclohexane 4457-00-5 4485-77-2
 4669-01-6 4753-80-4, Thiacycloheptane 5171-84-6,
 3,3,4,4-Tetramethylhexane 5332-52-5, 1-Undecanethiol 5408-86-6,
 2,3-Dibromobutane 5617-41-4 5617-42-5 5634-30-0 5881-17-4,
 3-Ethyl-octane 5911-04-6, 3-Methylnonane 6006-33-3 6006-34-4
 6006-95-7 6163-66-2, tert-Butyl ether 6294-31-1, Hexyl sulfide
 6742-54-7, 1-Phenylundecane 6765-39-5, 1-Heptadecene 6785-23-5
 6812-38-0 6812-39-1 6863-58-7, sec-Butyl ether 6876-18-2 6876-23-9
 7146-60-3, 2,3-Dimethyloctane 7154-79-2 7154-80-5 7220-26-0,
 3-Ethyl-2,4-dimethylhexane 7289-44-3 7289-45-4, Methyltetradecyl
 sulfide 7309-44-6, Ethylhexyl sulfide 7372-86-3,
 2-Ethyl-6-methylnaphthalene 7642-09-3 7688-21-3 10496-15-8

10496-16-9 10496-18-1 13269-52-8 13360-61-7, 1-Pentadecene
 13373-97-2, 1-Eicosanethiol 13475-78-0, 5-Ethyl-2-methylheptane
 13475-79-1 13475-81-5, 2,2,3,3-Tetramethylhexane 13952-84-6,
 sec-Butylamine 14676-29-0, 3-Ethyl-2-methylheptane 14720-74-2,
 2,2,4-Trimethylheptane 15869-80-4, 3-Ethylheptane 15869-85-9,
 5-Methylnonane 15869-86-0, 4-Ethylheptane 15869-87-1,
 2,2-Dimethyloctane 15869-89-3, 2,5-Dimethyloctane 15869-92-8,
 3,4-Dimethyloctane 15869-93-9, 3,5-Dimethyloctane 15869-94-0,
 3,6-Dimethyloctane 15869-95-1, 4,4-Dimethyloctane 15869-96-2,
 4,5-Dimethyloctane 16747-25-4, 2,2,3-Trimethylhexane 16747-26-5,
 2,2,4-Trimethylhexane 16747-28-7, 2,3,3-Trimethylhexane 16747-30-1,
 2,4,4-Trimethylhexane 16747-31-2, 3,3,4-Trimethylhexane 16747-32-3,
 3-Ethyl-2,2-dimethylpentane 16747-33-4, 3-Ethyl-2,3-dimethylpentane
 16747-38-9, 2,3,3,4-Tetramethylpentane 16747-42-5,
 2,2,4,5-Tetramethylhexane 16747-44-7, 2,2,3,3,4-Pentamethylpentane
 16747-45-8, 2,2,3,4,4-Pentamethylpentane 16789-46-1,
 3-Ethyl-2-methylhexane 16900-07-5, Butyloctyl sulfide 16900-08-6,
 Butyldodecyl sulfide 16967-04-7, Butylhexyl sulfide 17059-55-1
 17301-94-9, 4-Methylnonane 17302-01-1, 3-Ethyl-3-methylheptane
 17302-02-2 17302-04-4 17348-59-3, Isopropyl tert-butyl ether
 18435-45-5, 1-Nonadecene 18437-89-3 19313-57-6 19313-61-2,
 Decylethyl sulfide 19398-77-7, 3,4-Diethylhexane 19484-26-5,
 1-Tridecanethiol 20278-84-6, 2,4,5-Trimethylheptane 20278-85-7,
 2,3,5-Trimethylheptane 20278-87-9, 3,3,4-Trimethylheptane 20278-88-0,
 3,4,4-Trimethylheptane 20291-60-5, Hexylmethyl sulfide 20291-61-6,
 Heptylmethyl sulfide 20291-91-2 20291-95-6, 2,2,5-Trimethylheptane
 22438-39-7, Decylmethyl sulfide 24768-42-1, Butylpentyl sulfide
 24768-43-2 24768-44-3, Ethylheptyl sulfide 24768-46-5, Heptylpropyl
 sulfide 25276-70-4, 1-Pentadecanethiol 26158-99-6, Ethylpentyl sulfide
 26186-00-5, 1-Heptadecyne 26186-01-6, 1-Nonadecyne 26186-02-7,
 1-Tridecyne 27563-68-4, Hexadecylmethyl sulfide 31032-94-7
 36653-82-4, 1-Hexadecanol 38842-05-6, 1,2,3,5-Tetraethylbenzene
 40289-98-3 40813-84-1 41947-84-6 42205-08-3 42841-80-5,
 Pentylpropyl sulfide 51750-65-3, 2,2,4,4-Tetramethylhexane 52896-87-4,
 4-Isopropylheptane 52896-88-5 52896-89-6 52896-90-9 52896-91-0,
 3-Ethyl-4-methylheptane 52896-92-1, 2,2,3-Trimethylheptane 52896-93-2,
 2,3,3-Trimethylheptane 52896-95-4 52896-99-8 52897-00-4 52897-01-5
 52897-03-7 52897-04-8 52897-05-9 52897-06-0 52897-08-2,
 2,2,3,4-Tetramethylhexane 52897-09-3, 2,2,3,5-Tetramethylhexane
 52897-10-6, 2,3,3,4-Tetramethylhexane 52897-11-7,
 2,3,3,5-Tetramethylhexane 52897-12-8, 2,3,4,4-Tetramethylhexane
 52897-15-1, 2,3,4,5-Tetramethylhexane 52897-16-2 52897-17-3,
 3-Ethyl-2,2,3-trimethylpentane 52897-18-4 52897-19-5,
 3-Ethyl-2,3,4-trimethylpentane 53161-72-1 53193-22-9,
 1-Heptadecanethiol 53193-23-0, 1-Nonadecanethiol 54105-66-7
 59973-07-8, Methylnonyl sulfide 59973-08-9 62103-66-6 62155-09-3
 62155-10-6, Methylpentadecyl sulfide 62155-11-7 62155-12-8
 64919-20-6 66271-54-3 66271-55-4 66271-81-6 66271-82-7
 66271-83-8 66292-31-7, Ethylhexadecyl sulfide 66292-32-8 66292-33-9
 66359-40-8 66359-41-9 66359-42-0 66455-35-4 66577-30-8
 66577-31-9 66577-32-0 66577-61-5 66577-62-6 66826-84-4

RL: PRP (Properties)

(heat capacity of, equation for calcn. of)

L23 ANSWER 8 OF 10 CAPLUS COPYRIGHT 2009 ACS on STN
 AN 1976:121128 CAPLUS
 DN 84:121128
 OREF 84:19661a,19664a
 ED Entered STN: 12 May 1984
 TI O,S'-Dialkyl-S-hydrocarbylthioalkyl dithiophosphates
 IN Oswald, Alexis A.; Valint, Paul L., Jr.
 PA Exxon Research and Engineering Co., USA

SO U.S., 15 pp.
 CODEN: USXXAM
 DT Patent
 LA English
 IC C07F; A01N
 INCL 260948000
 CC 23-8 (Aliphatic Compounds)
 Section cross-reference(s): 5

FAN.CNT 4

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3927148	A	19751216	US 1973-377874	19730709
PRAI	US 1969-821117	A1	19690501		
	US 1971-173267	A3	19710819		

CLASS

	PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
	US 3927148	IC	C07F; A01N
		INCL	260948000
		IPCI	C07F0009-165 [ICM]; C07F0009-00 [ICM,C*]; A01N0009-36 [ICS]
		IPCR	A01N0057-00 [I,C*]; A01N0057-12 [I,A]; C07F0009-00 [I,C*]; C07F0009-165 [I,A]
		NCL	558/183.000; 558/184.000; 558/187.000; 987/209.000
		ECLA	A01N057/12; C07F009/165A1+M
AB	Five (RO)2P(S)S(CH2)nCH(SR1)R2 (R = Et, hexadecyl; n = 0, 1, 3; R1 = Et, 4-chlorophenyl, octyl; R2 = Me, H) were O-dealkylated and S-alkylated with R3Br (R3 = Pr, Et, dodecyl) to give the resp. RO(R3S)P(O)S(CH2)nCH(SR1)R2 (I). The addition reaction of 13 RO(R1S)P(O)S(CH2)nCH:CHR2 (R = Et, Me, Pr; R1 = Pr, CH2CHMe2, Bu, CHMe2; n = 0, 1; R2 = Me, Et, CMe3) with R3SH (R3 = Me, Et, CHMe2, Pr, hexyl) gave the resp. RO(R1S)P(O)S(CH2)nCH2CH(SR3)R2 (II). The I and II demonstrated pesticidal activity.		
ST	alkylthioalkyl dialkyl dithiophosphate pesticide; alkenyl dithiophosphate addn alkanethiol		
IT	Pesticides		
	(O,S-dialkyl S-alkylthioalkyl dithiophosphates)		
IT	Dealkylation		
	(O-, of O,O-dialkyl S-alkylthioalkyl dithiophosphates, S-alkylation of products from)		
IT	Alkylation		
	(S-, of O-alkyl-S-(alkylthioalkyl)dithiophosphoric acids with alkyl bromides)		
IT	786-19-6	22911-14-4	57342-34-4
	RL: RCT (Reactant); RACT (Reactant or reagent)		
	(O-Dealkylation and S-alkylation of)		
IT	298-02-2	17346-57-5	57342-43-5
	RL: RCT (Reactant); RACT (Reactant or reagent)		
	(O-dealkylation and S-alkylation of)		
IT	74-96-4	106-94-5	143-15-7
	RL: RCT (Reactant); RACT (Reactant or reagent)		
	(S-alkylation of O-alkyl-S-(alkylthioalkyl)dithiophosphoric acids with)		
IT	111-85-3	4860-03-1	
	RL: RCT (Reactant); RACT (Reactant or reagent)		
	(S-alkylation of O-alkyl-S-alkenyldithiophosphoric acid derivative with)		
IT	2917-26-2	27941-98-6	
	RL: RCT (Reactant); RACT (Reactant or reagent)		
	(addition reaction of, with O,S-dialkyl S-alkenyl dithiophosphate derivative)		
IT	74-93-1	75-08-1	75-33-2 107-03-9 111-31-9
	RL: RCT (Reactant); RACT (Reactant or reagent)		
	(addition reaction of, with O,S-dialkyl S-alkenyl dithiophosphates)		
IT	27564-69-8	27564-71-2	27564-72-3 27564-73-4 27564-77-8

57342-37-7 57342-38-8 57342-39-9 57342-40-2
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (addition reaction of, with alkanethiols)

IT 57342-36-6P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (preparation and S-alkylation of, with dodecyl bromide)

IT 57342-45-7P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (preparation and S-alkylation of, with hexadecyl chloride)

IT 57342-47-9P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (preparation and S-alkylation of, with octyl chloride)

IT 57342-42-4P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (preparation and addition reaction of, with hexadecanethiol)

IT 57342-41-3P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (preparation and addition reaction of, with trichlorobenzenethiol)

IT 32039-91-1P 32064-96-3P 32064-97-4P 32064-98-5P 32064-99-6P
 32065-00-2P 32065-01-3P 32065-02-4P 32065-03-5P 32065-04-6P
 32065-05-7P 32065-06-8P 32065-07-9P 32065-08-0P 32065-10-4P
 57341-50-1P 57342-31-1P 57342-32-2P 57342-33-3P 58588-84-4P
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological
 study, unclassified); SPN (Synthetic preparation); BIOL (Biological
 study); PREP (Preparation)
 (preparation and pesticidal activity of)

L23 ANSWER 9 OF 10 CAPLUS COPYRIGHT 2009 ACS on STN
 AN 1975:592556 CAPLUS
 DN 83:192556
 OREF 83:30261a,30264a
 ED Entered STN: 12 May 1984
 TI Pesticidal O,S'-dialkyl S-alkylthioalkyl dithiophosphates
 IN Oswald, Alexis A.; Valint, Paul L., Jr.
 PA Exxon Research and Engineering Co., USA
 SO U.S., 16 pp.
 CODEN: USXXAM

DT Patent
 LA English
 IC C07F; A01N
 INCL 260949000
 CC 23-8 (Aliphatic Compounds)
 Section cross-reference(s): 5

FAN.CNT 4

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3904710	A	19750909	US 1973-377872	19730709
PRAI	US 1969-821117	A1	19690501		
	US 1971-173267	A3	19710819		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 3904710	IC	C07F; A01N
	INCL	260949000
	IPCI	C07F0009-165 [ICM]; C07F0009-00 [ICM,C*]; A01N0009-36 [ICS]
	IPCR	A01N0057-00 [I,C*]; A01N0057-14 [I,A]; C07F0009-00

[I,C*]; C07F0009-165 [I,A]
NCL 558/187.000; 558/183.000; 558/184.000; 987/209.000
ECLA A01N057/14; C07F009/165A1+M

AB Esters RSQSP(S)(OR1)2 (R = Et, octyl, 4-ClC6H4; Q = C1-4 straight-chain or branched alkylene; R1 = Et, hexadecyl) were O-dealkylated with amine catalysts and the products were S-alkylated with R2Br to give five RSQSP(O)(OR1)SR2 (R2 = Et, Pr, dodecyl) which exhibited pesticidal, insecticidal, and miticidal activity. Twelve RCH(SR3)CH2SP(O)(OR1)SR2 (R = C1-4 alkyl, R1 = C1-8 alkyl, R2 = C3-16 alkyl, R3 = C1-6 alkyl), which also demonstrated the above properties, were prepared from RCH:CHSP(O)(OR1)SR2 and R3SH.

ST alkyl dithiophosphate pesticide insecticide; miticide alkyl dithiophosphate; alkylthioalkyl dithiophosphate pesticide miticide; dealkylation catalytic trialkyl dithiophosphate; alkylation dialkyl dithiophosphate sulfur

IT Acaricides
Insecticides
Pesticides
(O,S-dialkyl S-alkylthioalkyl dithiophosphates)

IT Dealkylation catalysts
(O-, amines, for O,O-dialkyl S-alkylthioalkyl dithiophosphates)

IT Alkylation
(S-, of O-alkyl S-alkylthioalkyl dithiophosphates with alkyl bromides)

IT Addition reaction
(of O,S-dialkyl S-alkenyl dithiophosphates with alkanethiols)

IT 298-04-4 786-19-6 17346-57-5 22911-14-4 57342-34-4 57342-43-5
57583-99-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(O-dealkylation of, catalysts for)

IT 111-85-3 4860-03-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(S-alkylation of O-alkyl S-alkenyl dithiophosphates with)

IT 74-96-4 106-94-5 143-15-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(S-alkylation of O-alkyl S-alkylthioalkyl dithiophosphates with)

IT 74-93-1 75-08-1 75-33-2 107-03-9 111-31-9 2917-26-2
27941-98-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(addition reaction of, with O,S-dialkyl S-alkenyl dithiophosphates)

IT 27564-69-8 27564-71-2 27564-72-3 27564-73-4 27564-77-8
57342-37-7 57342-38-8 57342-39-9 57342-40-2 57342-41-3
57342-42-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(addition reaction of, with alkanethiols)

IT 75-50-3, uses and miscellaneous 280-57-9 7664-41-7, uses and miscellaneous
RL: CAT (Catalyst use); USES (Uses)
(catalyst, for O-dealkylation of O,O-dialkyl S-alkylthioalkyl dithiophosphates)

IT 57342-36-6P 57342-45-7P 57342-47-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and S-alkylation of)

IT 32039-91-1P 32064-96-3P 32064-97-4P 32064-99-6P 32065-00-2P
32065-01-3P 32065-02-4P 32065-03-5P 32065-04-6P 32065-05-7P
32065-06-8P 32065-07-9P 32065-08-0P 32065-09-1P 32065-10-4P
57341-50-1P 57342-31-1P 57342-32-2P 57342-33-3P 57517-30-3P
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)
(preparation and pesticidal activity of)

L23 ANSWER 10 OF 10 CAPLUS COPYRIGHT 2009 ACS on STN

AN 1961:12985 CAPLUS

DN 55:12985

OREF 55:2478g-i,2479a-g

ED Entered STN: 22 Apr 2001

TI S-Alkylmercaptosuccinic acids as solid derivatives of olefins, alkyl bromides, and mercaptans

AU Hendrickson, Joe G.; Hatch, Lewis F.

CS Univ. of Texas, Austin

SO Journal of Organic Chemistry (1960), 25, 1747-52

CODEN: JOCEAH; ISSN: 0022-3263

DT Journal

LA Unavailable

CC 10B (Organic Chemistry: Aliphatic Compounds)

AB Solid S-alkylmercaptosuccinic acids were prepared from olefins, mercaptans, and alkyl bromides and their m.ps. and solubilities studied as a function of structure of the alkyl group. These properties varied with structure in a predictable manner. The acids were satisfactory solid derivs. for primary olefins and mercaptans and both primary and secondary alkyl bromides because of the ease with which the reaction could be effected, the good yields obtained, and the ease of purification. They had the added advantage of being acids; thus their neutralization equivs. could be obtained for confirmatory characterization. Mercaptosuccinic acid (I) (2 g.) and 3 ml. MeOH heated until the acid had completely dissolved, the solution cooled, 1 ml. olefin plus 0.10 g. Bz2O2 added, the tube stoppered, shaken 5 min., left at room temperature, the crystals washed with H2O, and treated with 25 ml. 6N HCl gave 1.3-1.9 g. products. The crystals were recovered by vacuum filtration, dried 12 hrs. at room temperature, 1 g. of the derivative dissolved in 10-15 ml. Et2O, then pentane added, the mixture filtered, the crystals discarded, pentane added to the filtrate, and the crystals separated. Di-Na maleate (20 ml., 1.0M), 2 ml. alc., 1 ml. mercaptan, and chips were refluxed 2-4 hrs., the mixture cooled, the lower layer separated,

diluted with 10 ml. concentrated HCl, the mercaptan derivative precipitated, and purified in

the same manner as the products from the I-olefin reaction. The yield usually was in the range 0.8-2.0 g. I (1.00 ml.), 2 ml. PrOH, 1 ml. alkyl bromide, 25 ml. 1.33N KOH, and chips were refluxed 4-24 hrs., the aqueous layer extracted with pentane, 10 ml. concentrated HCl added to the aqueous layer, and

the precipitated material recrystd. as usual. The S-alkylmercaptosuccinic acids

were titrated with 0.07N KOH to phenolphthalein end point in the presence of 5 ml. EtOH and 40 ml. H2O; the higher mol. weight derivs. were titrated in warm solution because of their limited solubility. The following results were thus

obtained (R of RSCH(CO2H)CH2CO2H, olefin, % yield of olefin, m.p., % yield of mercaptan, m.p., % yield of bromide and m.p. given): Pr, -, -, -, -, -, 78, 118.4-18.8°; 1-Bu, -, -, -, 43, 103.7-4.0°, -, -; 2-Bu, -, -, -, -, 60, 134.9-5.1°; iso-Bu, -, -, -, -, 41, 120.9-1.4°; tert-Bu, -, -, -, -, -, -, 1-pentyl, 1-pentene, 85, 107.3-7.6°, 100, 107.7-8.0°, 60, 107.0-7.6°; 2-pentyl, -, -, -, -, 50, 134.8-5.4°; 3-pentyl, -, -, -, -, 39, 153.8-4.1°; 2-methylbutyl, 2-methyl-1-butene, 85, 122.3-2.6°, -, -, -, -, 65, 115.6-16.0°; 1,2-dimethylpropyl, 2-methyl-2-butene, 75, 153.7-4.0°, -, -, -, -, 1-hexyl, 1-hexene, 100, 95.4-5.7°, 79, 96.0-6.2°, 91, 96.3-6.5°; 2-hexyl, -, -, -, -, 31, 123.9-5.0°; 3-hexyl, -, -, -, -, 24, 143.4-3.5°; 3-methylpentyl, -, -, -, -, 84, 111.9-12.3°; 4-methylpentyl, 4-methyl-1-pentene, 92, 102.6-2.9°, -, -, -, -, 1-isopropylpropyl, 2-methyl-2-pentene, -, -, 60, 152.1-2.6°, -, -, 2-ethylbutyl, -, -,

-, -, -, 75, 132.4-2.8°; 1-heptyl, 1-heptene, 88, 103.4-3.9°, 82, 105.8-6.2°, -, -; 2-heptyl, -, -, -, -, -, 31, 128.0-9.1°; 3-heptyl, -, -, -, -, -, 21, 144.9-5.4°; 4,4-di-methylpentyl, 4,4-dimethyl-1-pentene, 90, 119.0-19.5°, -, -, -, -; 1-methyl-2-ethylbutyl, 3-ethyl-2-pentene, 45, 148.9-9.9°, -, -, -, -; 1-octyl, 1-octene, 96, 96.1-6.6°, -, -, -, -; 2-octyl, -, -, -, -, 50, 128.0-9.0°; 3-octyl, 2-octene, 94, 142.9-3.5°, -, -, -, -; 2-ethyl-hexyl, 2-ethyl-1-hexene, 81, 101.9-2.7°, -, -, 59, 103.7-4.2°; 2-cyclohexylethyl, -, -, -, -, 47, 126.3-6.8°; 1-nonyl, -, -, -, 85, 105.0-6.0°, 43, 105.0-5.5°; 3-phenylpropyl, -, -, -, 98, 114.9-15.7°, -, -, -; 1-decyl, 1-decene, 82, 93.5-3.8°, -, -, -, -; 1-undecyl, -, -, -, -, 37, 110.4-10.6°; 1-tetradecyl, 1-tetradecene, 76, 104.0-4.8°, -, -, -, -; 1-hexadecyl, 1-hexadecene, 84, 105.0-5.8°, -, -, -, -; 1-octadecyl, -, -, -, 100, 102-3°, -, -; cyclopentyl, cyclopentene, 75, 142.8-3.1°, -, -, -, -; cyclohexyl, cyclohexene, 83, 150.5-1.1°, -, -, 9, 149.0-9.9°; 2-methylcyclohexyl, 2-methylcyclohexene, 73, 187.0-7.3°, -, -, -, -; 4-methylcyclohexyl, -, -, -, 6, 148.7-9.3°, -, -; benzyl, -, -, -, 97, 188.4-8.9°, -, -; p-chlorophenyl, -, -, -, -, -, -; 3-thienyl, -, -, -, -, -, -; 3-chloropropyl, allyl chloride, 35, 108.5-8.8°, -, -, -, -. The following solubilities of RSCH(CO₂H)CH₂CO₂H in PhMe at 50.0° were obtained (R and g./100 g. PhMe given): 1-Pr, 0.30; 2-Bu, 0.46; iso-Bu, 0.87; 2-methylbutyl, 4.00; 2-methyl-2-butyl, 0.14; 2-ethylbutyl, 2.59; octadecyl, 3.70; cyclohexyl, 0.25; 2-cyclohexylethyl, 1.90; 3-chloropropyl, 0.67.

IT Alkyl bromides

Olefins

(identification of)

IT Thiols

(separation and determination of)

IT 110-83-8, Cyclohexene

(detection of)

IT 78-76-2, Butane, 2-bromo- 78-77-3, Propane, 1-bromo-2-methyl-100-53-8, α -Toluenethiol 106-94-5, Propane, 1-bromo-107-05-1, Propene, 3-chloro- 107-81-3, Pentane, 2-bromo- 107-82-4, Butane, 1-bromo-3-methyl- 108-85-0, Cyclohexane, bromo- 109-67-1, 1-Pentene 109-79-5, 1-Butanethiol 110-53-2, Pentane, 1-bromo-110-66-7, 1-Pentanethiol 111-25-1, Hexane, 1-bromo- 111-31-9, 1-Hexanethiol 111-66-0, 1-Octene 111-67-1, 2-Octene 142-29-0, Cyclopentene 513-35-9, 2-Butene, 2-methyl- 557-35-7, Octane, 2-bromo-563-46-2, 1-Butene, 2-methyl- 591-49-1, Cyclohexene, 1-methyl-592-41-6, 1-Hexene 592-76-7, 1-Heptene 625-27-4, 2-Pentene, 2-methyl-629-73-2, 1-Hexadecene 691-37-2, 1-Pentene, 4-methyl- 693-58-3, Nonane, 1-bromo- 693-67-4, Undecane, 1-bromo- 762-62-9, 1-Pentene, 4,4-dimethyl- 816-79-5, 2-Pentene, 3-ethyl- 872-05-9, 1-Decene 1120-36-1, 1-Tetradecene 1455-21-6, 1-Nonanethiol 1632-16-2, 1-Hexene, 2-ethyl- 1639-09-4, 1-Heptanethiol 1647-26-3, Cyclohexane, (2-bromoethyl)- 1809-10-5, Pentane, 3-bromo- 1974-04-5, Heptane, 2-bromo- 1974-05-6, Heptane, 3-bromo- 2885-00-9, 1-Octadecanethiol 3377-86-4, Hexane, 2-bromo- 3377-87-5, Hexane, 3-bromo- 3814-34-4, Pentane, 3-(bromomethyl)- 18908-66-2, Heptane, 3-(bromomethyl)- 24734-68-7, 1-Propanethiol, 3-phenyl- 51116-73-5, Pentane, 1-bromo-3-methyl- 60260-87-9, Cyclohexanethiol, 4-methyl-

(identification of)

IT 5413-66-1P, Succinic acid, (pentylthio)- 6188-77-8P, Succinic acid, (octylthio)- 22119-10-4P, Succinic acid, (benzylthio)- 26819-75-0P, Succinic acid, (isobutylthio)- 26819-76-1P, Succinic acid, (isopentylthio)- 45015-91-6P, Succinic acid, (propylthio)- 45084-17-1P, Succinic acid, (butylthio)- 60713-01-1P, Succinic acid, (tetradecylthio)- 60713-02-2P, Succinic acid, (hexadecylthio)-

60745-27-9P, Succinic acid, (decylthio)- 65594-35-6P, Succinic acid,
 (hexylthio)- 85927-34-0P, Succinic acid, (octadecylthio)- 98431-24-4P,
 Succinic acid, (3-chloropropylthio)- 99174-55-7P, Succinic acid,
 (1-ethyl-2-methylpropylthio)- 99183-70-7P, Succinic acid,
 (1,2-dimethylpropylthio)- 99183-71-8P, Succinic acid,
 (1-ethylpropylthio)- 99974-58-0P, Succinic acid, (cyclohexylthio)-
 100048-63-3P, Succinic acid, (4,4-dimethylpentylthio)- 100048-64-4P,
 Succinic acid, (2-ethyl-1-methylbutylthio)- 100048-65-5P, Succinic acid,
 (1-ethylpentylthio)- 100048-66-6P, Succinic acid, (heptylthio)-
 100048-67-7P, Succinic acid, (1-methylhexylthio)- 100145-30-0P, Succinic
 acid, (cyclopentylthio)- 100250-93-9P, Succinic acid,
 (1-methylheptylthio)- 100315-91-1P, Succinic acid,
 (2-cyclohexylethylthio)- 100538-68-9P, Succinic acid, (nonylthio)-
 100613-26-1P, Succinic acid, (3-phenylpropylthio)- 103204-54-2P,
 Succinic acid, [2-ethylbutylthio]- 103204-55-3P, Succinic acid,
 [3-methylpentylthio]- 103205-84-1P, Succinic acid, [1-ethylbutylthio]-
 103205-85-2P, Succinic acid, [1-methylpentylthio]- 103260-48-6P,
 Succinic acid, [2-methylbutylthio]- 103263-72-5P, Succinic acid,
 [1-methylbutylthio]- 104177-65-3P, Succinic acid,
 [4-methylcyclohexylthio]- 104178-83-8P, Succinic acid,
 [2-methylcyclohexylthio]- 105906-88-5P, Succinic acid,
 [2-ethylhexylthio]- 105910-67-6P, Succinic acid, [1-ethylhexylthio]-
 114098-60-1P, Succinic acid, (isohexylthio)- 120089-21-6P, Succinic
 acid, (sec-butylthio)- 131731-38-9P, Succinic acid, undecylthio-
 RL: PREP (Preparation)

(preparation of)

IT 70-49-5, Succinic acid, mercapto-
 (S-alkyl derivs.)

=> s (106-94-5 or 2885-00-9 or 2917-26-2 or 22811-02-5 or 10220-46-9) and (silver
 or ag)

REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...

Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L25 50 L24

REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...

Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L27 6 L26

REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...

Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L29 1621 L28

REGISTRY INITIATED
Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L31 2011 L30

REGISTRY INITIATED
Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L33 4963 L32

379472 SILVER
342330 AG
L34 510 (L33 OR L31 OR L29 OR L27 OR L25) AND (SILVER OR AG)

=> s polish##### or tarnish##### or detarnish#####
117992 POLISH#####
3049 TARNISH#####
9 DETARNISH#####
L35 120792 POLISH##### OR TARNISH##### OR DETARNISH#####

=> l34 and l35
L34 IS NOT A RECOGNIZED COMMAND
The previous command name entered was not recognized by the system.
For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).

=> s l34 and l35
L36 26 L34 AND L35

=> d 1-26 all

L36 ANSWER 1 OF 26 CAPLUS COPYRIGHT 2009 ACS on STN

AN 2005:1062684 CAPLUS
 DN 143:351549
 ED Entered STN: 05 Oct 2005
 TI Water-based sulfur-containing composition chemical mechanical
 polishing of nonferrous metals
 IN Johns, Peter Gamon; Harrison, Clare Elizabeth
 PA Middlesex Silver Co. Limited, UK
 SO Brit. UK Pat. Appl., 29 pp.
 CODEN: BAXXD
 DT Patent
 LA English
 IC ICM C23F011-16
 ICS C23F011-00
 CC 57-7 (Ceramics)
 Section cross-reference(s): 56

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	GB 2412666	A	20051005	GB 2004-7163	20040330
	GB 2412666	B	20081008		
	AU 2005229275	A1	20051013	AU 2005-229275	20050324
	CA 2559989	A1	20051013	CA 2005-2559989	20050324
	WO 2005095675	A1	20051013	WO 2005-GB50043	20050324
	W:				
	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,				
	CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,				
	GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,				
	LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI,				
	NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM,				
	SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, VZ, VN, YU, ZA, ZM, ZW				
	RW:				
	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM,				
	AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,				
	EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT,				
	RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML,				
	MR, NE, SN, TD, TG				
	EP 1730325	A1	20061213	EP 2005-718135	20050324
	R:				
	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,				
	IS, IT, LI, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR				
	CN 1946878	A	20070411	CN 2005-80013434	20050324
	JP 2007537354	T	20071220	JP 2007-505641	20050324
	IN 2006DN05356	A	20070713	IN 2006-DN5356	20060915
	MX 2006010964	A	20061116	MX 2006-10964	20060925
	US 20070277906	A1	20071206	US 2007-594477	20070702
PRAI	GB 2004-7163	A	20040330		
	WO 2005-GB50043	W	20050324		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
GB 2412666	ICM	C23F011-16
	ICS	C23F011-00
	IPCI	C23F0011-10 [I,C]; C23F0011-16 [I,A]; C23F0011-00 [I,C]; C23F0011-00 [I,A]
	IPCR	C09G0001-00 [I,C*]; C09G0001-02 [I,A]; C11D0003-00 [I,C*]; C11D0003-00 [I,A]; C11D0003-34 [I,C*]; C11D0003-34 [I,A]; C11D0011-00 [I,C*]; C11D0011-00 [I,A]
	ECLA	C23F011/16; C23F011/16B
AU 2005229275	IPCI	C11D0003-00 [I,C*]; C09G0001-00 [I,C*]; C11D0003-34 [I,C*]; C11D0011-00 [I,C*]; C23F0011-10 [I,C*]; C11D0003-00 [I,A]; C09G0001-02 [I,A]; C11D0003-34 [I,A]; C11D0011-00 [I,A]; C23F0011-16 [I,A]
	IPCR	C11D0003-00 [I,C*]; C11D0003-00 [I,A]; C09G0001-00 [I,C*]; C09G0001-02 [I,A]; C11D0003-34 [I,C*];

		C11D0003-34 [I,A]; C11D0011-00 [I,C*]; C11D0011-00 [I,A]; C23F0011-10 [I,C*]; C23F0011-16 [I,A]
CA 2559989	ECLA	C23F011/16; C23F011/16B
	IPCI	C09G0001-02 [I,A]; C09G0001-00 [I,C*]; C11D0003-00 [I,A]; C11D0003-34 [I,A]; C11D0011-00 [I,A]; C23F0011-16 [I,A]; C23F0011-10 [I,C*]
	IPCR	C23F0011-10 [I,C]; C23F0011-16 [I,A]; C09G0001-00 [I,C]; C09G0001-02 [I,A]; C11D0003-00 [I,C]; C11D0003-00 [I,A]; C11D0003-34 [I,C]; C11D0003-34 [I,A]; C11D0011-00 [I,C]; C11D0011-00 [I,A]
WO 2005095675	ECLA	C23F011/16; C23F011/16B
	IPCI	C23F0011-16 [ICM,7]; C23F0011-10 [ICM,7,C*]; C11D0003-00 [ICS,7]; C11D0003-34 [ICS,7]; C11D0011-00 [ICS,7]; C09G0001-02 [ICS,7]; C09G0001-00 [ICS,7,C*]
	IPCR	C09G0001-00 [I,C*]; C09G0001-02 [I,A]; C11D0003-00 [I,C*]; C11D0003-00 [I,A]; C11D0003-34 [I,C*]; C11D0003-34 [I,A]; C11D0011-00 [I,C*]; C11D0011-00 [I,A]; C23F0011-10 [I,C*]; C23F0011-16 [I,A]
EP 1730325	ECLA	C23F011/16; C23F011/16B
	IPCI	C23F0011-16 [I,A]; C23F0011-10 [I,C*]; C11D0003-00 [I,A]; C11D0003-34 [I,A]; C11D0011-00 [I,A]; C09G0001-02 [I,A]; C09G0001-00 [I,C*]
	IPCR	C23F0011-10 [I,C]; C23F0011-16 [I,A]; C09G0001-00 [I,C]; C09G0001-02 [I,A]; C11D0003-00 [I,C]; C11D0003-00 [I,A]; C11D0003-34 [I,C]; C11D0003-34 [I,A]; C11D0011-00 [I,C]; C11D0011-00 [I,A]
CN 1946878	ECLA	C23F011/16; C23F011/16B
	IPCI	C23F0011-16 [I,A]; C23F0011-10 [I,C*]; C11D0003-00 [I,A]; C11D0003-34 [I,A]; C11D0011-00 [I,A]; C09G0001-02 [I,A]; C09G0001-00 [I,C*]
	IPCR	C23F0011-10 [I,C]; C23F0011-16 [I,A]; C09G0001-00 [I,C*]; C09G0001-02 [I,A]; C11D0003-00 [I,C*]; C11D0003-00 [I,A]; C11D0003-34 [I,C*]; C11D0003-34 [I,A]; C11D0011-00 [I,C*]; C11D0011-00 [I,A]
JP 2007537354	ECLA	C23F011/16; C23F011/16B
	IPCI	C23C0022-58 [I,A]; C11D0003-34 [I,A]; C23C0022-68 [I,A]; C23C0022-05 [I,C*]; C11D0003-20 [I,A]; C11D0001-52 [I,A]; C11D0001-38 [I,C*]; C11D0001-72 [I,A]; C11D0001-79 [I,A]; C11D0001-755 [I,A]; C11D0001-75 [I,A]; C11D0001-722 [I,A]; C11D0001-14 [I,A]; C11D0001-02 [I,C*]; C11D0001-90 [I,A]; C11D0001-88 [I,C*]; C11D0003-04 [I,A]; C11D0001-68 [I,A]; C09K0003-14 [I,A]
	IPCR	C23C0022-05 [I,C]; C23C0022-58 [I,A]; C09G0001-00 [I,C*]; C09G0001-02 [I,A]; C09K0003-14 [I,C]; C09K0003-14 [I,A]; C11D0001-02 [I,C]; C11D0001-14 [I,A]; C11D0001-38 [I,C]; C11D0001-52 [I,A]; C11D0001-68 [I,C]; C11D0001-68 [I,A]; C11D0001-72 [I,C]; C11D0001-72 [I,A]; C11D0001-722 [I,C]; C11D0001-722 [I,A]; C11D0001-75 [I,C]; C11D0001-75 [I,A]; C11D0001-755 [I,C]; C11D0001-755 [I,A]; C11D0001-79 [I,C]; C11D0001-79 [I,A]; C11D0001-88 [I,C]; C11D0001-90 [I,A]; C11D0003-00 [I,C*]; C11D0003-00 [I,A]; C11D0003-04 [I,C]; C11D0003-04 [I,A]; C11D0003-20 [I,C]; C11D0003-20 [I,A]; C11D0003-34 [I,C]; C11D0003-34 [I,A]; C11D0011-00 [I,C*]; C11D0011-00 [I,A]; C23C0022-68 [I,A]; C23F0011-10 [I,C*]; C23F0011-16 [I,A]
	FTERM	4H003/AB27; 4H003/AC02; 4H003/AC10; 4H003/AC13; 4H003/AD04; 4H003/BA12; 4H003/DA15; 4H003/EA12; 4H003/EA19; 4H003/EB05; 4H003/EB18; 4H003/EB21; 4H003/ED02; 4H003/FA05; 4K026/AA01; 4K026/AA06;

4K026/CA15; 4K026/CA37; 4K026/DA02; 4K026/DA03
 IN 2006DN05356 IPCI C23F0011-16 [ICM,7]; C23F0011-10 [ICM,7,C*]
 MX 2006010964 IPCI C09G0001-02 [ICM,7]; C09G0001-00 [ICM,7,C*];
 C11D0011-00 [ICS,7]; C11D0003-00 [ICS,7]; C11D0003-34
 [ICS,7]; C23F0011-16 [ICS,7]; C23F0011-10 [ICS,7,C*]
 US 20070277906 IPCI C23F0011-16 [I,A]; C23F0011-10 [I,C*]; C09G0001-02
 [I,A]; C09G0001-00 [I,C*]; C11D0011-00 [I,A];
 C11D0003-00 [I,A]; C11D0003-34 [I,A]
 NCL 148/022.000
 OS MARPAT 143:351549
 AB A composition and associated method of manufacture of a water based
 composition comprising a
 treatment agent selected from an alkanethiol, alkyl thioglycollate, and
 dialkyl sulfide or dialkyl disulfide. The composition also includes at least
 one of an amphoteric, non-ionic or cationic surfactant, where the
 treatment agent is directly dissolved or dispersed the water containing the
 amphoteric, non-ionic or cationic surfactant. The composition is particularly
 useful for the treatment of Ag-Cu-Ge alloy, copper, brass, and
 nickel. A solid polishing medium can also be included in the
 composition, for example, silica or precipitated chalk, alumina, or silica.
 ST chalk alumina silica alkanethiol thioglycollate chem mech
 polishing copper
 IT Thiols, processes
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical
 process); TEM (Technical or engineered material use); PROC (Process); USES
 (Uses)
 (alkanethiol; water-based sulfur-containing composition chemical mech.
 polishing of metals)
 IT Disulfides
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical
 process); TEM (Technical or engineered material use); PROC (Process); USES
 (Uses)
 (alkyl; water-based sulfur-containing composition chemical mech. polishing
 of metals)
 IT Chalk
 Diatomite
 RL: TEM (Technical or engineered material use); USES (Uses)
 (as abrasive; water-based sulfur-containing composition chemical mech.
 polishing of metals)
 IT Surfactants
 (cationic; water-based sulfur-containing composition chemical mech.
 polishing of metals)
 IT Polishing
 (chemical-mech.; water-based sulfur-containing composition chemical mech.
 polishing of metals)
 IT Polishing materials
 (paste; water-based sulfur-containing composition chemical mech. polishing
 of metals)
 IT Thioethers
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical
 process); TEM (Technical or engineered material use); PROC (Process); USES
 (Uses)
 (water-based sulfur-containing composition chemical mech. polishing of
 metals)
 IT 1344-28-1, Alumina, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (abrasive; water-based sulfur-containing composition chemical mech.
 polishing of metals)
 IT 9004-82-4, Sodium laureth sulfate
 RL: MOA (Modifier or additive use); USES (Uses)
 (anionic surfactant; water-based sulfur-containing composition chemical
 mech.

polishing of metals)

IT 7631-86-9, Silica, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (as abrasive; water-based sulfur-containing composition chemical mech.
 polishing of metals)

IT 36574-66-0D, N-coco acyl derivs.
 RL: MOA (Modifier or additive use); USES (Uses)
 (cocamidopropyl betaine, surfactant; water-based sulfur-containing
 composition
 chemical mech. polishing of metals)

IT 7440-02-0, Nickel, processes 7440-50-8, Copper, processes 11144-43-7
 12597-71-6, Brass, processes 74969-69-0
 RL: PEP (Physical, engineering or chemical process); PYP (Physical
 process); PROC (Process)
 (polished substrate; water-based sulfur-containing composition chemical
 mech. polishing of metals)

IT 62-56-6, Thiourea, uses 2885-00-9, Octadecyl mercaptan
 RL: TEM (Technical or engineered material use); USES (Uses)
 (polishing composition component; water-based sulfur-containing composition
 chemical mech. polishing of metals)

IT 2917-26-2, Hexadecyl mercaptan
 RL: MOA (Modifier or additive use); USES (Uses)
 (surfactant; water-based sulfur-containing composition chemical mech.
 polishing of metals)

IT 68-11-1D, alkyl esters
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical
 process); TEM (Technical or engineered material use); PROC (Process); USES
 (Uses)
 (water-based sulfur-containing composition chemical mech. polishing of
 metals)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE

- (1) Anon; EP 0492487 A1 CAPLUS
- (2) Anon; GB 0956927 A
- (3) Anon; GB 1117510 A
- (4) Anon; US 3503883 A
- (5) Anon; US 3518098 A
- (6) Anon; US 5650385 A CAPLUS

L36 ANSWER 2 OF 26 CAPLUS COPYRIGHT 2009 ACS on STN

AN 2004:1087508 CAPLUS

DN 142:489405

ED Entered STN: 20 Dec 2004

TI Reduction of silver tarnishing and protection against
 subsequent corrosion

AU Bernard, M. C.; Dauvergne, E.; Evesque, M.; Keddani, M.; Takenouti, H.

CS UPR 15 of CNRS "Laboratoire Interfaces et Systemes Electrochimiques",
 Universite P&M Curie, Paris, 75252, Fr.

SO Corrosion Science (2005), 47(3), 663-679

CODEN: CRRSAA; ISSN: 0010-938X

PB Elsevier Ltd.

DT Journal

LA English

CC 72-2 (Electrochemistry)

Section cross-reference(s): 28, 56, 66

AB The kinetics of tarnishing formation was examined on a
 polished silver dipped in a 10 mM Na₂S. The recovery of
 an initial bright surface was then obtained by cathodic reduction of the
 tarnish layer in a 5% sesqui-carbonate solution Two protection
 methods to prevent a further formation of a dark deposit were tested: an
 electrodeposited poly(amino-triazole) film and the surface treatment in
 hexadecane-thiol. The protection by poly(amino-triazole) is not reliable

for all nuances of silver. In contrast, the film formed with hexadecane-thiol showed satisfactory properties. The formations of tarnish and protective films were examined by electrochem. methods, the reflectance measurements, and the quartz crystal microbalance.

ST silver tarnishing protection polyaminotriazole thiol surface treatment electroredn; hexadecanethiol film silver tarnishing protection microbalance

IT Optical reflection
(by silver during tarnishing reduction in sodium carbonate-bicarbonate solution)

IT Electric potential
(during silver tarnishing in Na₂S solution)

IT Polymerization
(electrochem.; of 3-amino-1,2,4-triazole on silver for protection of tarnishing)

IT Corrosion kinetics
(kinetics of tarnishing formation on polished silver dipped in 10 mM Na₂S)

IT Adsorption
(of hexadecanethiol on silver surface for protection of tarnishing)

IT Cyclic voltammetry
(of silver in sodium acetate methanol solution containing amino-triazole)

IT Reduction, electrochemical
(of silver tarnishing and protection against subsequent corrosion)

IT Voltammetry
(of silver tarnishing reduction in sodium carbonate-bicarbonate solution)

IT Surface treatment
(protection of silver tarnishing using hexadecane-thiol)

IT Microbalances
(quartz crystal; study of silver tarnishing reduction in sodium carbonate-bicarbonate solution using)

IT Corrosion prevention
Tarnishing
(reduction of silver tarnishing and protection against subsequent corrosion)

IT 67-56-1, Methanol, uses 127-09-3, Sodium acetate
RL: NUU (Other use, unclassified); USES (Uses)
(cyclic voltammetry of silver in sodium acetate methanol solution containing amino-triazole)

IT 61-82-5, 3-Amino-1,2,4-triazole
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(electropolymn. on silver for protection of tarnishing)

IT 1313-82-2, Sodium sulfide, reactions
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(kinetics of tarnishing formation on polished silver dipped in 10 mM Na₂S)

IT 2917-26-2, Hexadecane-thiol
RL: NUU (Other use, unclassified); USES (Uses)
(protection of silver tarnishing using)

IT 7440-22-4, Silver, uses
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(reduction of silver tarnishing and protection against

subsequent corrosion)
 IT 151313-83-6P, Poly(3-amino-1,2,4-triazole)
 RL: NUU (Other use, unclassified); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)
 (silver protection of tarnishing using film of)
 IT 533-96-0, Sodium sesqui-carbonate
 RL: NUU (Other use, unclassified); USES (Uses)
 (voltammetry of silver tarnishing reduction in sodium carbonate-bicarbonate solution)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Burleigh, T; Corrosion 2001, V57(12), P1066 CAPLUS
- (2) Degriigny, C; Corrosion Australasia 1993, V18, P16 CAPLUS
- (3) Degriigny, C; J Int Inst Conservat Historic Artistic Works 1995, P170
- (4) Evesque, M; Electrochim Acta 2004, V49, P2939
- (5) Keddarn, M; 15th International Corrosion Congress, CD-Rom Proceedings 2002, 701
- (6) Trachli, B; Corros Sci 2002, V44, P997 CAPLUS

L36 ANSWER 3 OF 26 CAPLUS COPYRIGHT 2009 ACS on STN

AN 2004:1051670 CAPLUS

DN 142:26523

ED Entered STN: 08 Dec 2004

TI Silver-germanium-copper alloy for decorative utensils with a tarnish-preventing treatment

IN Johns, Peter Gamon

PA Middlesex Silver Co. Limited, UK; Cole, Paul Gilbert

SO Brit. UK Pat. Appl., 26 pp.

CODEN: BAXXDU

DT Patent

LA English

IC ICM C22C005-08

ICS C11D003-34; C22C005-06; C23C022-02

CC 56-3 (Nonferrous Metals and Alloys)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	GB 2402399	A	20041208	GB 2003-12693	20030603
	GB 2402399	B	20051012		
	US 20070009375	A1	20070111	US 2004-559092	20030601
	AU 2004243654	A1	20041209	AU 2004-243654	20040601
	CA 2527430	A1	20041209	CA 2004-2527430	20040601
	WO 2004106567	A1	20041209	WO 2004-GB2317	20040601
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	EP 1631692	A1	20060308	EP 2004-735594	20040601
	EP 1631692	B1	20090114		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK				
	CN 1846007	A	20061011	CN 2004-80015410	20040601
	JP 2007535616	T	20071206	JP 2006-508380	20040601
	AT 420980	T	20090115	AT 2004-735594	20040601
	IN 2005DN05033	A	20070817	IN 2005-DN5033	20051103

MX 2005012991	A	20060720	MX 2005-12991	20051201
PRAI GB 2003-12693	A	20030603		
WO 2004-GB2317	W	20040601		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
GB 2402399	ICM	C22C005-08
	ICS	C11D003-34; C22C005-06; C23C022-02
	IPCI	C22C0005-08 [ICM,7]; C11D0003-34 [ICS,7]; C22C0005-06 [ICS,7]; C23C0022-02 [ICS,7]
	IPCR	C23F0011-10 [I,C*]; C23F0011-16 [I,A]
	ECLA	C23F011/16; C23F011/16B
US 20070009375	IPCI	C22C0005-08 [I,A]; C22C0005-06 [I,C*]
	NCL	420/502.000
	ECLA	C23F011/16; C23F011/16B
AU 2004243654	IPCI	C22C0005-06 [ICM,7]
	IPCR	C23F0011-10 [I,C*]; C23F0011-16 [I,A]
	ECLA	C23F011/16; C23F011/16B
CA 2527430	IPCI	C22C0005-06 [I,A]
	IPCR	C22C0005-06 [I,A]; C22C0005-06 [I,C]; C23F0011-10 [I,C*]; C23F0011-16 [I,A]
	ECLA	C23F011/16; C23F011/16B
WO 2004106567	IPCI	C22C0005-06 [ICM,7]
	IPCR	C23F0011-10 [I,C*]; C23F0011-16 [I,A]
	ECLA	C23F011/16; C23F011/16B
EP 1631692	IPCI	C22C0005-06 [I,C]; C22C0005-06 [I,A]
	IPCR	C23F0011-10 [I,C*]; C23F0011-16 [I,A]
	ECLA	C23F011/16; C23F011/16B
CN 1846007	IPCI	C22C0005-06 [I,A]
	IPCR	C22C0005-06 [I,C]; C22C0005-06 [I,A]; C23F0011-10 [I,C*]; C23F0011-16 [I,A]
	ECLA	C23F011/16; C23F011/16B
JP 2007535616	IPCI	C22C0005-06 [I,A]; C23C0022-02 [I,A]; C23G0005-02 [I,A]; C23G0005-00 [I,C*]; C22F0001-14 [N,A]; C22F0001-00 [N,A]
	IPCR	C22C0005-06 [I,C]; C22C0005-06 [I,A]; C22F0001-00 [N,C]; C22F0001-00 [N,A]; C22F0001-14 [N,C]; C22F0001-14 [N,A]; C23C0022-02 [I,C]; C23C0022-02 [I,A]; C23F0011-10 [I,C*]; C23F0011-16 [I,A]; C23G0005-00 [I,C]; C23G0005-02 [I,A]
	ECLA	C23F011/16; C23F011/16B
	FTERM	4K026/AA01; 4K026/BA01; 4K026/BB01; 4K026/BB08; 4K026/CA02; 4K053/PA01; 4K053/PA13; 4K053/QA07; 4K053/RA08; 4K053/RA54; 4K053/SA02; 4K053/SA06; 4K053/ZA01
AT 420980	IPCI	C22C0005-06 [I,C]; C22C0005-06 [I,A]
	IPCR	C23F0011-10 [I,C*]; C23F0011-16 [I,A]
	ECLA	C23F011/16; C23F011/16B
IN 2005DN05033	IPCI	C22C0005-06 [ICM,7]
MX 2005012991	IPCI	C22C0005-06 [ICM,7]

AB The decorative alloy contains 93.5-95.5% Ag, 0.5-3% Ge by weight, and Cu as the balance, optionally with 1-40 ppm of B as the grain refiner. The typical alloy contains Ag 94.5, Cu 4.3, and Ge 1.2%, and is suitable for strip manufacture by continuous casting followed by cold rolling with intermediate annealing. The polished surface of manufactured Ag-alloy articles is treated for tarnish resistance with an alkanethiol, alkyl thioglycollate, dialkyl sulfide, or dialkyl disulfide, especially stearyl mercaptan, cetyl mercaptan (octadecyl mercaptan), stearyl thioglycollate, or cetyl thioglycollate. The S-containing mols. are optionally dissolved in: (a) organic solvent (especially Pr bromide), and applied as a polish or impregnated into a cleaning cloth; or (b) organic

solvent modified by adding concentrated aqueous soap or detergent. The resulting mixture are optionally diluted with water for the tarnish-preventing treatment.

ST silver copper germanium alloy utensil tarnish prevention thiol treatment

IT Metalworking
(Ag-alloy; Ag-Ge-Cu alloy for decorative polished utensils with tarnish-preventing treatment)

IT Tarnishing
(prevention, on Ag alloy; Ag-Ge-Cu alloy for decorative polished utensils with tarnish-preventing treatment)

IT Detergents
(tarnish prevention with, on Ag alloy; Ag-Ge-Cu alloy for decorative polished utensils with tarnish-preventing treatment)

IT Thioethers
Thiols, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(tarnish prevention with, on Ag alloy; Ag-Ge-Cu alloy for decorative polished utensils with tarnish-preventing treatment)

IT 7440-42-8, Boron, uses
RL: MOA (Modifier or additive use); USES (Uses)
(Ag alloy containing; Ag-Ge-Cu alloy for decorative polished utensils with tarnish-preventing treatment)

IT 802919-79-5
RL: TEM (Technical or engineered material use); USES (Uses)
(alloying of; Ag-Ge-Cu alloy for decorative polished utensils with tarnish-preventing treatment)

IT 802919-80-8
RL: TEM (Technical or engineered material use); USES (Uses)
(decorative; Ag-Ge-Cu alloy for decorative polished utensils with tarnish-preventing treatment)

IT 68-11-1D, alkylated
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(tarnish prevention with; Ag-Ge-Cu alloy for decorative polished utensils with tarnish-preventing treatment)

IT 106-94-5, n-Propyl bromide
RL: TEM (Technical or engineered material use); USES (Uses)
(tarnish prevention with; Ag-Ge-Cu alloy for decorative polished utensils with tarnish-preventing treatment)

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Asada; US 5972131 A CAPLUS
- (2) Goddard; GB 1130540 A
- (3) Goddard; GB 1217414 A CAPLUS
- (4) Johns; WO 02095082 A2 CAPLUS
- (5) Johns; GB 2283933 A
- (6) Johns; US 6168071 B1 CAPLUS
- (7) Metaleurop; GB 2255348 A CAPLUS
- (8) Murphey; US 2841501 A

L36 ANSWER 4 OF 26 CAPLUS COPYRIGHT 2009 ACS on STN
AN 2004:847649 CAPLUS
DN 141:353637
ED Entered STN: 15 Oct 2004

TI Pretreatment of Ag-alloy surface with organosulfur compounds for
 tarnishing prevention
 IN Johns, Peter Gammon; Harrison, Clare Elizabeth
 PA Middlesex Silver Co. Limited, UK
 SO PCT Int. Appl., 43 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM C23F011-16
 CC 56-6 (Nonferrous Metals and Alloys)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004087996	A1	20041014	WO 2004-GB1373	20040330
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
	AU 2004225693	A1	20041014	AU 2004-225693	20040330
	CA 2520807	A1	20041014	CA 2004-2520807	20040330
	EP 1611267	A1	20060104	EP 2004-724313	20040330
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK			
	CN 1780937	A	20060531	CN 2004-80011375	20040330
	JP 2006523266	T	20061012	JP 2006-506057	20040330
	IN 2005DN04346	A	20070831	IN 2005-DN4346	20050926
	MX 2005010452	A	20060510	MX 2005-10452	20050928
	US 20070039665	A1	20070222	US 2005-551476	20050929
PRAI	GB 2003-7290	A	20030331		
	WO 2004-GB1373	W	20040330		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2004087996	ICM	C23F011-16
	IPCI	C23F0011-16 [ICM,7]; C23F0011-10 [ICM,7,C*]
	IPCR	C23F0011-10 [I,C*]; C23F0011-16 [I,A]
	ECLA	C23F011/16; C23F011/16B
AU 2004225693	IPCI	C23F0011-16 [ICM,7]; C23F0011-10 [ICM,7,C*]
	IPCR	C23F0011-10 [I,C*]; C23F0011-16 [I,A]
	ECLA	C23F011/16; C23F011/16B
CA 2520807	IPCI	C23F0011-16 [ICM,7]; C23F0011-10 [ICM,7,C*]
	IPCR	C23F0011-10 [I,C*]; C23F0011-16 [I,A]
	ECLA	C23F011/16; C23F011/16B
EP 1611267	IPCI	C23F0011-16 [ICM,7]; C23F0011-10 [ICM,7,C*]
	IPCR	C23F0011-10 [I,C*]; C23F0011-16 [I,A]
	ECLA	C23F011/16; C23F011/16B
CN 1780937	IPCI	C23F0011-16 [I,A]; C23F0011-10 [I,C*]
	ECLA	C23F011/16; C23F011/16B
JP 2006523266	IPCI	C23F0011-00 [I,A]; C22C0005-06 [I,A]; C22C0005-08 [I,A]
	IPCR	C23F0011-00 [I,C]; C23F0011-00 [I,A]; C22C0005-06 [I,A]; C22C0005-08 [I,A]; C23F0011-10 [I,C*]; C23F0011-16 [I,A]
	FTERM	4K062/AA01; 4K062/BB21; 4K062/BC22; 4K062/FA16
IN 2005DN04346	IPCI	C23F0011-16 [ICM,7]; C23F0011-10 [ICM,7,C*]
MX 2005010452	IPCI	C23F0011-16 [ICM,7]; C23F0011-10 [ICM,7,C*]

ECLA C23F011/16; C23F011/16B
US 20070039665 IPCI C23G0001-00 [I,A]; C23C0022-58 [I,A]; C23C0022-05
[I,C*]
NCL 148/271.000; 134/002.000

AB The Ag alloys containing minor Ge (especially Ag-Cu-Ge alloys)
to decrease the fire stain discoloration are pretreated on the surface
with an alkanethiol, alkyl thioglycollate, dialkyl sulfide, or dialkyl
disulfide to prevent tarnishing. The treatment with
organosulfur compds. is suitable for manufactured Ag-alloy articles
to prevent tarnished appearance during transit and the
subsequent extended display without special packaging. The Ag
-alloy surface is optionally treated with aqueous solution containing an
alkanethiol,
alkyl thioglycollate, dialkyl sulfide, or dialkyl disulfide, as well as a
mixture of anionic surfactant and amphoteric or nonionic surfactant to
solubilize the treatment agent. The typical ternary alloy contains
Ag 80-96, Cu 1-19.9, and Ge 0.1-5%.

ST silver copper germanium alloy tarnishing prevention
organosulfur

IT Surfactants
(anionic, in tarnishing prevention; Ag-alloy
surface treated with organosulfur compds. for tarnishing
prevention)

IT Surfactants
(in tarnishing prevention; Ag-alloy surface treated
with organosulfur compds. for tarnishing prevention)

IT Surfactants
(nonionic, in tarnishing prevention; Ag-alloy
surface treated with organosulfur compds. for tarnishing
prevention)

IT Tarnishing
(prevention of; Ag-alloy surface treated with organosulfur
compds. for tarnishing prevention)

IT Thioethers
Thiols, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(tarnishing prevention by; Ag-alloy surface treated
with organosulfur compds. for tarnishing prevention)

IT 7440-56-4, Germanium, uses
RL: MOA (Modifier or additive use); USES (Uses)
(Ag alloys containing, tarnishing prevention on;
Ag-alloy surface treated with organosulfur compds. for
tarnishing prevention)

IT 106-94-5, n-Propyl bromide
RL: TEM (Technical or engineered material use); USES (Uses)
(solvent, in tarnishing prevention; Ag-alloy
surface treated with organosulfur compds. for tarnishing
prevention)

IT 2885-00-9, Octadecyl mercaptan 2917-26-2, Cetyl
mercaptan
RL: CPS (Chemical process); PEP (Physical, engineering or chemical
process); PROC (Process)
(tarnishing prevention by; Ag-alloy surface treated
with organosulfur compds. for tarnishing prevention)

IT 39282-03-6, Sterling silver 103221-24-5 476614-10-5
476614-12-7 476614-13-8
RL: CPS (Chemical process); PEP (Physical, engineering or chemical
process); PROC (Process)
(tarnishing prevention on; Ag-alloy surface treated
with organosulfur compds. for tarnishing prevention)

IT 9080-17-5, Ammonium polysulfide
RL: CPS (Chemical process); PEP (Physical, engineering or chemical

process); PROC (Process)
 (test solution with, for tarnishing; Ag-alloy surface
 treated with organosulfur compds. for tarnishing prevention)

RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE

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 (2) Carpenter, J; US 3398003 A 1968 CAPLUS
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L36 ANSWER 5 OF 26 CAPLUS COPYRIGHT 2009 ACS on STN
 AN 2004:396797 CAPLUS
 DN 141:113055
 ED Entered STN: 17 May 2004
 TI The formation of self-assembling membrane of hexadecane-thiol on
 silver to prevent the tarnishing
 AU Evesque, Magali; Keddam, Michel; Takenouti, Hisasi
 CS Laboratoires Interface et Systemes Electrochimiques, UPR15 du CNRS, Pierre
 et Marie Curie University, Paris, 75252, Fr.
 SO Electrochimica Acta (2004), 49(17-18), 2937-2943
 CODEN: ELCAAV; ISSN: 0013-4686
 PB Elsevier Science B.V.
 DT Journal
 LA English
 CC 72-6 (Electrochemistry)
 Section cross-reference(s): 56

AB Artifacts in Ag suffer from tarnishing when exposed to
 atms. polluted by sulfide. The authors found the optimum conditions to
 form an efficient, invisible and protective film against the
 tarnishing appearance on Ag in 0.5M NaCl solution containing 10
 mM Na₂S. This solution corresponds to a highly aggressive medium not only by
 the coupling of 2 aggressive agents, but also by a high concentration of S₂-
 (320 ppm). The Ag surface was 1st degreased carefully by successive
 dippings in 3 organic solvents, EtOH, acetone and hexane, followed by a
 slight surface activation in H₂SO₄ solution. Then, a Ag specimen
 was immersed in an isoPrOH solution with 0.15M C₁₆H₃₃SH during 1 h at
 30°. The kinetics of tarnishing was tracked by
 reflectance, quartz-microbalance measurements, and electrochem. impedance
 spectroscopy. The protection of hexadecane-thiol reaches 90% in terms of
 reflectance, after 1 h of corrosion test, i.e., no alteration by visual
 inspection. The thiol film has a double structure, an inner
 self-assembling membrane of 1 or 2 monolayers and an outer-layer with some
 tenths micrometers. This surface film limits markedly the diffusion of
 dissolved oxygen to the electrode surface, thus slows down the rate of
 Ag sulfide (Ag₂S) formation.

ST self assembling membrane formation hexadecanethiol silver
 tarnishing prevention

IT Adsorbed substances
 (corrosion of silver with and without adsorbed
 hexadecanethiol in NaCl containing Na₂S in tarnishing prevention
 study)

IT Microbalances
 (electrochem. quartz crystal; in corrosion and characterization study
 of hexadecanethiol adsorbed film on silver in NaCl containing
 Na₂S)

IT Adsorption

(hexadecanethiol by Ag in isoPrOH solution containing hexadecanethiol)

IT Electric impedance
(in corrosion study of hexadecanethiol adsorbed film on silver in NaCl containing Na₂S)

IT Corrosion
(of silver with and without adsorbed hexadecanethiol in NaCl containing Na₂S in tarnishing prevention study)

IT Tarnishing
(prevention by hexadecanethiol film formed by immersion of Ag in isoPrOH solution containing hexadecanethiol)

IT 1313-82-2, Sodium sulfide (Na₂S), uses 7647-14-5, Sodium chloride, uses
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(elec. impedance and electrochem. quartz crystal microbalance study of hexadecanethiol adsorbed film on silver in NaCl containing Na₂S in tarnishing prevention study)

IT 2917-26-2, Hexadecanethiol
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(formation of self-assembling membrane of hexadecanethiol on silver to prevent tarnishing in electrochem. quartz crystal microbalance and impedance study)

IT 7440-22-4, Silver, properties
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(tarnishing prevention by hexadecanethiol film formed by immersion of Ag in isoPrOH solution containing hexadecanethiol)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

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- (2) Burleigh, T; Corrosion 2002, V58, P49 CAPLUS
- (3) Kartlucke, D; Galvanotechnik 1992, V83, P1918
- (4) Laibinis, P; Thin Films 1998, V24, P1 CAPLUS
- (5) Lee, J; Metall Mater Trans B 2001, V32, P895
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L36 ANSWER 6 OF 26 CAPLUS COPYRIGHT 2009 ACS on STN

AN 2002:49041 CAPLUS

DN 136:187483

ED Entered STN: 18 Jan 2002

TI Self-assembled monolayers of perfluoroalkyl amideethanethiols, fluoroalkylthiols, and alkylthiols for the prevention of silver tarnish

AU Burleigh, T. D.; Shi, C.; Kilic, S.; Kovacic, S.; Thompson, T.; Enick, R. M.

CS Department of Materials Science and Engineering, University of Pittsburgh, Pittsburgh, PA, 15261, USA

SO Corrosion (Houston, TX, United States) (2002), 58(1), 49-56
CODEN: CORRAK; ISSN: 0010-9312

PB NACE International

DT Journal

LA English

CC 56-10 (Nonferrous Metals and Alloys)

Section cross-reference(s): 42

AB Self-assembled monolayers (SAM) of perfluoroalkyl amideethanethiols. F(CF₂)_nCONH(CH₂)₂SH (n = 6, 7, or 8), inhibit the corrosion of silver by hydrogen sulfide (H₂S) in air. Unlike conventional hydrocarbon thiols used to protect silver from corrosion, these fluorinated amidethiols have a very low mercaptan odor, impart

fluorocarbon wettability properties to the silver surfaces, and exhibit intermol. assocns. via hydrogen bonding of the amide functionality. These fluorinated thiols were synthesized by reacting fluoroalkyl acid chloride with 2-aminoethanethiol, or by reacting Me fluoroalkanoate with 2-aminoethanethiol. SAM were formed by immersing silver coupons in 0.01, 0.1, and 1 wt% solns. of the fluorinated amidethiol in propanol (CH₃CH₂CH₂OH), or by applying a thin film of the thiol solution that rapidly evaporated. Electrochem. impedance spectroscopy

(EIS)

was used to evaluate the thickness and integrity of the monolayers. The thin films of evaporating thiol solution yielded rapid monolayer formation as a result of the increasing concentration of the thiol in the solution on the silver during the evaporation of the propanol. Accelerated tarnish tests were performed in a chamber that exposed the silver to air, water vapor, and 1 ppm H₂S for 7 h to 24 h at 313 K. The tarnish resistances associated with a fluoroalkyl thiol (1= 1H,2H,2H-perfluorodecyl-1-thiol) and hexadecanethiol were also determined. The best tarnish resistance was attained with the hexadecanethiol, and the perfluoroalkylamide ethanethiol yielded better corrosion resistance results than the fluoroalkylthiol.

ST tarnishing protection silver hexadecanethiol

IT Corrosion prevention

Films

Self-assembly

Tarnishing

(self-assembled monolayers for the prevention of silver tarnish)

IT Thiols, reactions

RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)

(self-assembled monolayers for the prevention of silver tarnish)

IT 7440-22-4, Silver, processes

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); TEM (Technical or engineered material use); PROC (Process); RACT (Reactant or reagent); USES (Uses)

(self-assembled monolayers for the prevention of silver tarnish)

IT 2917-26-2, Hexadecanethiol 7783-06-4, Hydrogen sulfide, processes

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); TEM (Technical or engineered material use); PROC (Process); RACT (Reactant or reagent); USES (Uses)

(self-assembled monolayers for the prevention of silver tarnish)

IT 95612-22-9 115281-11-3 192137-69-2

RL: TEM (Technical or engineered material use); USES (Uses)

(self-assembled monolayers for the prevention of silver tarnish)

RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Braach-Maksvytis, V; J Amer Chem Soc 2000, V122, P9544 CAPLUS
- (2) Burleigh, T; Corrosion 2001, V57(12), P1066 CAPLUS
- (3) Burleigh, T; J Electrochem Soc 1991, V138(8), PL34 CAPLUS
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- (6) Kartluke, V; Galvanotech 1992, V83(6), P1918
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- (9) National Institute for Occupational Safety and Health; Criteria for a Recommended Standard: Occupational Exposure to n-alkane Mono Thiols, Cyclohexane Thiol and Benzenethiol 1978, Publication no 78-213

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- (15) Shi, C; Trans SME 1999, V306, P69 CAPLUS
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L36 ANSWER 7 OF 26 CAPLUS COPYRIGHT 2009 ACS on STN

AN 2001:905959 CAPLUS

DN 136:89158

ED Entered STN: 16 Dec 2001

TI Tarnish protection of silver using a hexadecanethiol self-assembled monolayer and descriptions of accelerated tarnish tests

AU Burleigh, T. D.; Gu, Y.; Donahey, G.; Vida, M.; Waldeck, D. H.

CS Department of Materials Science and Engineering, University of Pittsburgh, Pittsburgh, PA, 15261, USA

SO Corrosion (Houston, TX, United States) (2001), 57(12), 1066-1074
CODEN: CORRAK; ISSN: 0010-9312

PB NACE International

DT Journal

LA English

CC 56-10 (Nonferrous Metals and Alloys)

AB A four-step procedure was developed for depositing a hexadecanethiol self-assembled monolayer (SAM) onto the surface of silver to provide tarnish resistance. The four steps may be characterized as cleaning, etching, monolayer self-assembly, and rinsing. A key observation in this work is that an optimal deposition time exists for a given concentration of the hexadecanethiol. For example, a 2 vol% solution (2

mL

hexadecanethiol in 98 mL trichloroethylene) required 30 min to 60 min for optimum coating formation. The quality of the coatings was characterized using water drop contact angle measurements and electrochem. impedance spectroscopy (EIS). In addition, two tarnish tests were developed specifically for this project. One test was a laboratory bench vapor test that could tarnish silver, copper, or brass to a dark color within a few hours. A second test exposed the silver to a stream of a sulfide-containing foam and could tarnish silver to black within several minutes. The degree of tarnishing from these two tests was quantified by measuring the% reflectance of the surface using visible light.

ST tarnish protection silver hexadecanethiol

IT Tarnishing
(tarnish protection of silver using a hexadecanethiol self-assembled monolayer and descriptions of accelerated tarnish tests)

IT 7440-22-4, Silver, processes

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)

(tarnish protection of silver using a hexadecanethiol self-assembled monolayer and descriptions of accelerated tarnish tests)

IT 2917-26-2, Hexadecanethiol

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(tarnish protection of silver using a hexadecanethiol self-assembled monolayer and descriptions of

accelerated tarnish tests)

RE.CNT 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

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- (2) Anon; NIOSH Pocket Guide to Chemical Hazards 1994, P160
- (3) Anon; <http://www.cdc.gov/niosh/ipcs/ipcs0025.html> 2001
- (4) Bergbreiter, D; US 5728431 1998 CAPLUS
- (5) Burleigh, T; J Electrochem Soc 1991, V138(8), PL34 CAPLUS
- (6) Butts, A; Silver in Industry 1940, P357
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L36 ANSWER 8 OF 26 CAPLUS COPYRIGHT 2009 ACS on STN

AN 2000:83978 CAPLUS

DN 132:172522

ED Entered STN: 04 Feb 2000

TI Electrochemical Cleaning of Surface-Confined Carbon Contamination in
Self-Assembled Monolayers on Polycrystalline Ag and Au

AU Schoenfisch, Mark H.; Ross, Azalia M.; Pemberton, Jeanne E.

CS Department of Chemistry, University of Arizona, Tucson, AZ, 85721, USA

SO Langmuir (2000), 16(6), 2907-2914

CODEN: LANGD5; ISSN: 0743-7463

PB American Chemical Society

DT Journal

LA English

CC 72-2 (Electrochemistry)

Section cross-reference(s): 66, 73

AB A protocol for electrochem. cleaning of carbon-contaminated alkanethiol
SAMs at mech. polished (MP) Ag surfaces was
characterized by surface Raman spectroscopy and electrochem. Vibrational
information in the $\nu(\text{C-S})$, $\nu(\text{C-C})$, $\nu(\text{C-H})$, and $\delta(\text{C-H})$
regions is particularly useful in elucidating the degree of order and amount
of contamination in propanethiol, dodecanethiol, and octadecanethiol
monolayers before and after neg. potential exposure in several aqueous
electrolytes. Specifically, Raman spectra indicate that electrochem.
cleaning of alkanethiol SAMs at potentials neg. of the thiolate reduction
removes carbonaceous species and greatly increases the film order near the
sulfur headgroup.

ST electrochem cleaning surface confined carbon contamination self assembled
monolayer; polycryst silver gold self assembled monolayer carbon
contamination electrocleaning; Raman spectra alkanethiol self assembled
monolayer gold silver

IT Thiols (organic), properties

RL: PEP (Physical, engineering or chemical process); PRP (Properties);
PROC (Process)

(electrochem. cleaning of surface-confined carbon contamination in alkanethiol self-assembled monolayers on polycryst. Ag and Au)

IT Self-assembled monolayers
(electrochem. cleaning of surface-confined carbon contamination in self-assembled monolayers on polycryst. Ag and Au)

IT Desorption
(electrochem.; of alkanethiol with contamination removal: electrochem. cleaning of surface-confined carbon contamination in self-assembled monolayers on polycryst. Ag)

IT Cleaning
(electrochem.; of surface-confined carbon contamination in self-assembled monolayers on polycryst. Ag and Au)

IT Electric potential
(neg.; in alkanethiol desorption and contamination removal: electrochem. cleaning of surface-confined carbon contamination in self-assembled monolayers on polycryst. Ag and Au)

IT Cyclic voltammetry
(of Ru(NH₃)₆³⁺ in KCl at alkanethiol self-assembled monolayers on Ag before and after neg. potential application and electrochem. cleaning)

IT Raman spectra
(of dodecanethiol and octadecanethiol and propanethiol self-assembled monolayers on Ag and Au: electrochem. cleaning of surface-confined carbon contamination in propanethiol self-assembled monolayers on polycryst. Ag and Au)

IT 7447-40-7, Potassium chloride (KCl), uses
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(cyclic voltammetry of Ru(NH₃)₆³⁺ in KCl at alkanethiol self-assembled monolayers on Ag before and after neg. potential application and electrochem. cleaning)

IT 18943-33-4, Hexaammineruthenium(3+)
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(cyclic voltammetry of Ru(NH₃)₆³⁺ in KCl at alkanethiol self-assembled monolayers on Ag before and after neg. potential application and electrochem. cleaning)

IT 7681-49-4, Sodium fluoride, uses
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(electrochem. cleaning of surface-confined carbon contamination in alkanethiol self-assembled monolayers on polycryst. Ag in solution of)

IT 1322-36-7, Dodecanethiol
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(electrochem. cleaning of surface-confined carbon contamination in dodecanethiol self-assembled monolayers on polycryst. Ag and Au)

IT 2885-00-9, Octadecanethiol
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(electrochem. cleaning of surface-confined carbon contamination in octadecanethiol self-assembled monolayers on polycryst. Ag and Au)

IT 79869-58-2, Propanethiol
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(electrochem. cleaning of surface-confined carbon contamination in propanethiol self-assembled monolayers on polycryst. Ag and Au)

IT 7440-22-4, Silver, uses 7440-57-5, Gold, uses
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(electrochem. cleaning of surface-confined carbon contamination in

self-assembled monolayers on polycryst. Ag and Au)
IT 7440-44-0, Carbon, properties
RL: OCU (Occurrence, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); OCCU (Occurrence); PROC (Process)
(electrochem. cleaning of surface-confined carbon contamination in self-assembled monolayers on polycryst. Ag and Au)

RE.CNT 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L36 ANSWER 9 OF 26 CAPLUS COPYRIGHT 2009 ACS on STN

AN 2000:83975 CAPLUS

DN 132:199505

ED Entered STN: 04 Feb 2000

TI Sequestration of carbonaceous species within alkanethiol self-assembled monolayers on Ag by Raman spectroscopy

AU Taylor, Chad E.; Schoenfish, Mark H.; Pemberton, Jeanne E.

CS Department of Chemistry, University of Arizona, Tucson, AZ, 85721, USA

SO Langmuir (2000), 16(6), 2902-2906

CODEN: LANGD5; ISSN: 0743-7463

PB American Chemical Society

DT Journal

LA English

CC 66-4 (Surface Chemistry and Colloids)

AB Raman spectra of hydrogenated CnSH (where, n = 3-5, 8, 9, 12, and 18) and C8D17SH SAMs at mech. polished (MP) Ag indicate monolayer contamination by a small polyarom. hydrocarbon (PAH). The

contaminant source at the unmodified MP Ag surface is identified using Raman spectroscopy, and thus, the contaminant is believed to be placed at this surface during the mech. polishing procedure. Notably, the PAH contaminant is not completely removed by either solvent dissoln. or alkanethiol adsorption, suggesting that it is strongly bound, and more significantly, sequestered within the alkanethiol SAM. Controlled incorporation of pyrene into dodecanethiol SAMs demonstrates that doping of alkanethiol SAMs may be possible for certain systems.

- ST alkanethiol self assembled monolayer silver PAH contaminant sequestration
- IT Polycyclic compounds
Polycyclic compounds
RL: MOA (Modifier or additive use); USES (Uses)
(aromatic hydrocarbons; sequestration of PAH contaminant within alkanethiol self-assembled monolayers on Ag)
- IT Aromatic hydrocarbons, uses
Aromatic hydrocarbons, uses
RL: MOA (Modifier or additive use); USES (Uses)
(polycyclic; sequestration of PAH contaminant within alkanethiol self-assembled monolayers on Ag)
- IT Self-assembled monolayers
(sequestration of PAH contaminant within alkanethiol self-assembled monolayers on Ag)
- IT Thiols (organic), properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(sequestration of PAH contaminant within alkanethiol self-assembled monolayers on Ag)
- IT Complexation
(sequestration; of PAH contaminant within alkanethiol self-assembled monolayers on Ag)
- IT 129-00-0, Pyrene, processes
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(model contaminant; sequestration of PAH contaminant within dodecanol self-assembled monolayers on Ag)
- IT 7440-22-4, Silver, processes
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(sequestration of PAH contaminant within alkanethiol self-assembled monolayers on)
- IT 109-79-5, Butanethiol 110-66-7, Pentanethiol 1322-36-7, Dodecanethiol 2885-00-9, Octadecanethiol 79869-58-2, Propanethiol 94805-33-1, Octanethiol
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(sequestration of PAH contaminant within alkanethiol self-assembled monolayers on Ag)

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L36 ANSWER 10 OF 26 CAPLUS COPYRIGHT 2009 ACS on STN

AN 1999:819549 CAPLUS

DN 132:67594

ED Entered STN: 30 Dec 1999

TI Aliphatic alcohol for inhibiting tarnish formation in cleaning
of silver surfaces with ether stabilized, n-propyl bromide
solvent systems

IN Shubkin, Ronald L.

PA Albemarle Corp., USA

SO PCT Int. Appl., 14 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C23G005-028

ICS C11D007-50

CC 56-10 (Nonferrous Metals and Alloys)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9967445	A1	19991229	WO 1999-US12965	19990609
	W: CA, JP, KR				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	CA 2333496	A1	19991229	CA 1999-2333496	19990609
	EP 1090164	A1	20010411	EP 1999-928514	19990609
	EP 1090164	B1	20031217		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	JP 2002519506	T	20020702	JP 2000-556083	19990609
	AT 256767	T	20040115	AT 1999-928514	19990609
PRAI	US 1998-104898	A	19980625		

WO 1999-US12965	W	19990609
CLASS		
PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
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WO 9967445	ICM	C23G0005-028
	ICS	C11D0007-50
	IPCI	C23G0005-028 [ICM,6]; C23G0005-00 [ICM,6,C*]; C11D0007-50 [ICS,6]
	IPCR	C11D0007-22 [I,C*]; C11D0007-26 [I,A]; C11D0007-30 [I,A]; C11D0007-32 [I,A]; C11D0007-50 [I,C*]; C11D0007-50 [I,A]; C11D0011-00 [I,C*]; C11D0011-00 [I,A]; C23G0005-00 [I,C*]; C23G0005-028 [I,A]
	ECLA	C11D007/26A; C11D011/00B2D8; C11D011/00B10; C23G0005/028; C11D007/26C; C11D007/32C; C11D007/50A; C11D011/00B2D2
CA 2333496	IPCI	C23G0005-028 [ICM,6]; C23G0005-00 [ICM,6,C*]; C11D0007-50 [ICS,6]
	IPCR	C11D0007-22 [I,C*]; C11D0007-26 [I,A]; C11D0007-30 [I,A]; C11D0007-32 [I,A]; C11D0007-50 [I,C*]; C11D0007-50 [I,A]; C11D0011-00 [I,C*]; C11D0011-00 [I,A]; C23G0005-00 [I,C*]; C23G0005-028 [I,A]
	ECLA	C11D007/26A; C11D007/26C; C11D007/32C; C11D007/50A; C11D011/00B2D2; C11D011/00B2D8; C11D011/00B10; C23G0005/028
EP 1090164	IPCI	C23G0005-028 [ICM,6]; C23G0005-00 [ICM,6,C*]; C11D0007-50 [ICS,6]
	IPCR	C11D0007-22 [I,C*]; C11D0007-26 [I,A]; C11D0007-30 [I,A]; C11D0007-32 [I,A]; C11D0007-50 [I,C*]; C11D0007-50 [I,A]; C11D0011-00 [I,C*]; C11D0011-00 [I,A]; C23G0005-00 [I,C*]; C23G0005-028 [I,A]
	ECLA	C11D007/26A; C11D007/26C; C11D007/32C; C11D007/50A; C11D011/00B2D2; C11D011/00B2D8; C11D011/00B10; C23G0005/028
JP 2002519506	IPCI	C23G0005-028 [ICM,7]; C23G0005-00 [ICM,7,C*]; C11D0007-26 [ICS,7]; C11D0007-30 [ICS,7]; C11D0007-22 [ICS,7,C*]; C11D0007-50 [ICS,7]
	IPCR	C11D0007-22 [I,C*]; C11D0007-26 [I,A]; C11D0007-30 [I,A]; C11D0007-32 [I,A]; C11D0007-50 [I,C*]; C11D0007-50 [I,A]; C11D0011-00 [I,C*]; C11D0011-00 [I,A]; C23G0005-00 [I,C*]; C23G0005-028 [I,A]
AT 256767	IPCI	C23G0005-028 [ICM,7]; C23G0005-00 [ICM,7,C*]; C11D0007-50 [ICS,7]
	ECLA	C11D007/26A; C11D007/26C; C11D007/32C; C11D007/50A; C11D011/00B2D2; C11D011/00B2D8; C11D011/00B10; C23G0005/028
AB	The tarnishing of Ag surface in cleaning with an ether-stabilized Pr bromide solution is inhibited by adding a saturated aliphatic	
	C1-10 alc. at 0.1-15%. The resulting bath is suitable for cleaning of Ag-coated electronic parts, and typically contains the Pr bromide at ≥80, ether (especially 1,3-dioxolane) as the stabilizer and metal passivator at 1.5-2.5, and the alc. (typically 1-propanol) 1.5-3.5%. The stabilized bath for vapor-type cleaning of Ag-coated steel strip contains 1,3-dioxolane 1.50, 1,2-epoxybutane 0.50, nitromethane 0.50, and 1-propanol 3.50%, vs. dark tarnish in 10-min test at 71° in the similar bath containing 4.0% 1,3-dioxolane with no 1-propanol.	
ST	silver tarnish prevention cleaning propyl bromide solvent; aliph alc inhibitor tarnish silver cleaning bath	
IT	Alcohols, uses	
	RL: MOA (Modifier or additive use); USES (Uses) (aliphatic, C1-10, cleaning bath containing; aliphatic alc. as tarnish	

inhibitor in stable solvent bath for cleaning of silver surface)

IT Ethers, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (cyclic, stabilizer, cleaning bath containing; aliphatic alc. as tarnish inhibitor in stable solvent bath for cleaning of silver surface)

IT Tarnishing
 (on silver; aliphatic alc. as tarnish inhibitor in stable solvent bath for cleaning of silver surface)

IT Electric contacts
 (silver-coated, cleaning of; aliphatic alc. as tarnish inhibitor in stable solvent bath for cleaning of silver surface)

IT 67-63-0, 2-Propanol, uses 71-23-8, 1-Propanol, uses 71-36-3, 1-Butanol, uses 75-52-5, Nitromethane, uses 75-65-0, tert-Butanol, uses 75-85-4, 1,1-Dimethylpropan-1-ol 78-83-1, 2-Methylpropan-1-ol, uses 78-92-2, 2-Butanol 106-88-7, 1,2-Epoxybutane 137-32-6, 2-Methylbutan-1-ol 598-75-4, 1,2-Dimethylpropan-1-ol 646-06-0, 1,3-Dioxolane
 RL: MOA (Modifier or additive use); USES (Uses)
 (cleaning bath containing; aliphatic alc. as tarnish inhibitor in stable solvent bath for cleaning of silver surface)

IT 106-94-5, n-Propyl bromide
 RL: TEM (Technical or engineered material use); USES (Uses)
 (cleaning bath; aliphatic alc. as tarnish inhibitor in stable solvent bath for cleaning of silver surface)

IT 7440-22-4, Silver, processes
 RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (cleaning of; aliphatic alc. as tarnish inhibitor in stable solvent bath for cleaning of silver surface)

RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L36 ANSWER 11 OF 26 CAPLUS COPYRIGHT 2009 ACS on STN

AN 1999:748299 CAPLUS

DN 131:352890

ED Entered STN: 25 Nov 1999

TI Acetylene compound for inhibiting tarnish formation when cleaning silver with ether-stabilized, n-propyl bromide-based solvent systems and cleaning electronic parts

IN Shubkin, Ronald L.

PA Albemarle Corporation, USA

SO U.S., 4 pp.
 CODEN: USXXAM

DT Patent

LA English

IC ICM C11D003-24
 ICS C11D003-43

INCL 510412000

CC 46-6 (Surface Active Agents and Detergents)

Section cross-reference(s): 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5990071	A	19991123	US 1998-104872	19980625
	CA 2333534	A1	19991229	CA 1999-2333534	19990609
	WO 9967446	A1	19991229	WO 1999-US12966	19990609
	W: CA, JP, KR				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 1090163	A1	20010411	EP 1999-927383	19990609
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	JP 2002519507	T	20020702	JP 2000-556084	19990609
PRAI	US 1998-104872	A	19980625		
	WO 1999-US12966	W	19990609		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 5990071	ICM	C11D003-24
	ICS	C11D003-43
	INCL	510412000
	IPCI	C11D0003-24 [ICM,6]; C11D0003-43 [ICS,6]
	IPCR	C11D0007-22 [N,C*]; C11D0007-24 [N,A]; C11D0007-26 [N,A]; C11D0007-28 [N,A]; C11D0007-50 [I,C*]; C11D0007-50 [I,A]; C11D0011-00 [I,C*]; C11D0011-00 [I,A]; C23G0005-00 [I,C*]; C23G0005-028 [I,A]
	NCL	510/412.000; 252/364.000; 510/175.000; 510/255.000; 510/256.000; 510/258.000; 510/273.000; 510/401.000
	ECLA	C11D007/50A6; C11D011/00B2D8; C23G005/028; M11D; M11D; M11D
CA 2333534	IPCI	C23G0005-028 [ICM,6]; C23G0005-00 [ICM,6,C*]; C11D0007-50 [ICS,6]
	IPCR	C11D0007-22 [N,C*]; C11D0007-24 [N,A]; C11D0007-26 [N,A]; C11D0007-28 [N,A]; C11D0007-50 [I,C*]; C11D0007-50 [I,A]; C11D0011-00 [I,C*]; C11D0011-00 [I,A]; C23G0005-00 [I,C*]; C23G0005-028 [I,A]
	ECLA	C11D007/50A6; C11D011/00B2D8; C23G005/028; M11D; M11D; M11D
WO 9967446	IPCI	C23G0005-028 [ICM,6]; C23G0005-00 [ICM,6,C*]; C11D0007-50 [ICS,6]
	IPCR	C11D0007-22 [N,C*]; C11D0007-24 [N,A]; C11D0007-26 [N,A]; C11D0007-28 [N,A]; C11D0007-50 [I,C*]; C11D0007-50 [I,A]; C11D0011-00 [I,C*]; C11D0011-00 [I,A]; C23G0005-00 [I,C*]; C23G0005-028 [I,A]
	ECLA	C11D007/50A6; C11D011/00B2D8; C23G005/028; M11D; M11D; M11D
EP 1090163	IPCI	C23G0005-028 [ICM,6]; C23G0005-00 [ICM,6,C*]; C11D0007-50 [ICS,6]
	IPCR	C11D0007-22 [N,C*]; C11D0007-24 [N,A]; C11D0007-26 [N,A]; C11D0007-28 [N,A]; C11D0007-50 [I,C*]; C11D0007-50 [I,A]; C11D0011-00 [I,C*]; C11D0011-00 [I,A]; C23G0005-00 [I,C*]; C23G0005-028 [I,A]
	ECLA	C11D007/50A6; C11D011/00B2D8; C23G005/028; M11D; M11D; M11D
JP 2002519507	IPCI	C23G0005-028 [ICM,7]; C23G0005-00 [ICM,7,C*]; C11D0007-50 [ICS,7]
	IPCR	C11D0007-22 [N,C*]; C11D0007-24 [N,A]; C11D0007-26 [N,A]; C11D0007-28 [N,A]; C11D0007-50 [I,C*]; C11D0007-50 [I,A]; C11D0011-00 [I,C*]; C11D0011-00 [I,A]; C23G0005-00 [I,C*]; C23G0005-028 [I,A]

AB Ag tarnishing is inhibited when using ether-stabilized, Pr bromide-based cleaning compns. by including a small amount of ≥ 1 C3-8 acetylenic hydrocarbon or halohydrocarbon. Adding 4% dioxolane, and 3-butyne-2-ol to stabilized Pr bromide cleaner resulted in no tarnishing of Ag-plated steel coupons.

ST acetylenic compd tarnish inhibitor solvent cleaner; propyl bromide solvent cleaner silver; ether stabilized solvent cleaner

IT Cleaning solvents
(acetylene compound for inhibiting tarnish formation when cleaning silver with ether-stabilized, Pr bromide-based solvent systems)

IT Tarnishing
(inhibiting; acetylene compound for inhibiting tarnish formation when cleaning silver with ether-stabilized, Pr bromide-based solvent systems)

IT 106-94-5, n-Propyl bromide
RL: TEM (Technical or engineered material use); USES (Uses)
(solvent; acetylene compound for inhibiting tarnish formation when cleaning silver with ether-stabilized, Pr bromide-based solvent systems)

IT 96-48-0, γ -Butyrolactone 109-99-9, Tetrahydrofuran, uses 110-88-3, Trioxane, uses 123-91-1, 1,4-Dioxane, uses 646-06-0, 1,3-Dioxolane
RL: MOA (Modifier or additive use); USES (Uses)
(stabilizer; acetylene compound for inhibiting tarnish formation when cleaning silver with ether-stabilized, Pr bromide-based solvent systems)

IT 106-96-7, Propargyl bromide 107-19-7, Propargyl alcohol 115-19-5, 2-Methyl-3-butyne-2-ol 624-65-7, Propargyl chloride 693-02-7, 1-Hexyne 764-01-2, 2-Butyn-1-ol 927-74-2, 3-Butyn-1-ol 928-49-4, 3-Hexyne 2028-63-9, 3-Butyn-2-ol
RL: MOA (Modifier or additive use); USES (Uses)
(tarnish inhibitor; acetylene compound for inhibiting tarnish formation when cleaning silver with ether-stabilized, Pr bromide-based solvent systems)

RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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- (3) Anon; JP 62-7798 1987 CAPLUS
- (4) Clark; US 5616549 1997 CAPLUS
- (5) Flynn; US 5814595 1998 CAPLUS
- (6) Flynn; US 5827812 1998 CAPLUS
- (7) Hartzler; US 3758503 1973 CAPLUS
- (8) Henry; US 5403507 1995 CAPLUS
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L36 ANSWER 12 OF 26 CAPLUS COPYRIGHT 2009 ACS on STN

AN 1999:734696 CAPLUS

DN 132:86245

ED Entered STN: 19 Nov 1999

TI New normal-propyl bromide based cleaning technology for the electronics industry

AU Chang, Suae-chen; Shubkin, Ronald L.

CS Albemarle Corporation, Baton Rouge, LA, USA

SO Circuit World (1999), 25(4), 17-21

CODEN: CIWODV; ISSN: 0305-6120

PB MCB University Press

DT Journal; General Review

LA English

CC 76-0 (Electric Phenomena)

AB A review with 5 refs. Precision cleaning with solvent systems based on Pr

bromide (nPB) has become an important component of the circuit board fabrication process. The nPB-based cleaners have proved themselves valuable alternatives to the once popular chlorocarbons and hydrochlorocarbons. These latter solvents have been largely banned or restricted because of toxicol. and/or environmental considerations. Pr bromide has nearly identical phys. and cleaning properties to 1,1,1-trichloroethane (1,1,1-T or TCA), but it has a low ozone depletion potential (ODP) and a low global warming potential (GWP). A growing body of evidence shows that nPB-based solvents are safe, effective, and cost-efficient alternatives for precision cleaning applications. New formulations have now been developed specifically for the electronics industry. The first challenge is the efficient removal of ionic residues left by certain types of solder flux. The second challenge is the prevention of tarnish on silver leads used on some circuit boards. Case histories and a discussion of relevant toxicol., environmental, and regulatory considerations are included.

ST review propyl bromide cleaning electronic industry

IT Cleaning

Electronics

(normal-Pr bromide based cleaning technol. for electronics industry)

IT 106-94-5, Propyl bromide

RL: NUU (Other use, unclassified); USES (Uses)

(normal-Pr bromide based cleaning technol. for electronics industry)

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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(4) Petrulio, R; CleanTech'98 1998

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L36 ANSWER 13 OF 26 CAPLUS COPYRIGHT 2009 ACS on STN

AN 1999:236323 CAPLUS

DN 131:10750

ED Entered STN: 16 Apr 1999

TI Effect of surface roughness on the self-assembly of octadecanethiol monolayer onto polycrystalline noble metal surfaces

AU Subramanian, R.; Lakshminarayanan, V.

CS Raman Research Institute, Bangalore, 560 080, India

SO Current Science (1999), 76(5), 665-669

CODEN: CUSCAM; ISSN: 0011-3891

PB Current Science Association

DT Journal

LA English

CC 72-2 (Electrochemistry)

Section cross-reference(s): 66

AB The role of surface roughness on defect formation in octadecanethiol monolayer covered surfaces of gold, silver and copper was studied using cyclic voltammetry and scanning tunneling microscopy. The adsorption of alkanethiol on surfaces subjected to various pre-treatments like mech. polishing using different grades of emery and alumina indicates that a surface polished with 0.05 μm alumina has a significantly greater number of defect sites, thereby allowing access to redox species, compared to a surface treated with coarse emery. Scanning tunneling microscopic studies reveal that for a given area, a 'smooth' alumina polished surface has a number of closely spaced corrugations compared to a surface roughened using a coarse emery. There exists a direct correlation between surface roughness and barrier efficiency.

ST surface roughness self assembly octadecanethiol monolayer polycryst noble

metal; cyclic voltammetry octadecanethiol monolayer gold silver
copper surface pretreatment; STM surface roughness effect octadecanethiol
monolayer noble metal

IT Adsorbed monolayers
Self-assembly
(effect of surface roughness on self-assembly of octadecanethiol
monolayer onto copper or silver or gold surfaces studied by
cyclic voltammetry and scanning tunneling microscopy)

IT Cyclic voltammetry
Scanning tunneling microscopy
Surface roughness
(effect of surface roughness on self-assembly of octadecanethiol
monolayer onto polycryst. noble metal surfaces studied by cyclic
voltammetry and scanning tunneling microscopy)

IT Noble metals
RL: PEP (Physical, engineering or chemical process); PRP (Properties);
PROC (Process)
(effect of surface roughness on self-assembly of octadecanethiol
monolayer onto polycryst. noble metal surfaces studied by cyclic
voltammetry and scanning tunneling microscopy)

IT Polishing
(of copper or silver or gold in study of effect of surface
roughness on self-assembly of octadecanethiol monolayer onto copper or
silver or gold surfaces studied by cyclic voltammetry and
scanning tunneling microscopy)

IT Adsorption
(of octadecanethiol by copper or silver or gold surfaces and
effect of surface roughness studied by cyclic voltammetry and scanning
tunneling microscopy scanning tunneling microscopy)

IT 7440-22-4, Silver, uses 7440-50-8, Copper, uses 7440-57-5,
Gold, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical
process); PRP (Properties); PROC (Process); USES (Uses)
(effect of surface roughness on self-assembly of octadecanethiol
monolayer onto copper or silver or gold surfaces studied by
cyclic voltammetry and scanning tunneling microscopy)

IT 2885-00-9, Octadecanethiol
RL: PEP (Physical, engineering or chemical process); PRP (Properties);
PROC (Process)
(effect of surface roughness on self-assembly of octadecanethiol
monolayer onto polycryst. noble metal surfaces studied by cyclic
voltammetry and scanning tunneling microscopy)

RE.CNT 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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- (4) Creager, S; Langmuir 1992, V8, P854 CAPLUS
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P124
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- (17) Porter, M; J Am Chem Soc 1987, V109, P3559 CAPLUS

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L36 ANSWER 14 OF 26 CAPLUS COPYRIGHT 2009 ACS on STN

AN 1998:269960 CAPLUS

DN 129:45750

OREF 129:9485a,9488a

ED Entered STN: 13 May 1998

TI Air Stability of Alkanethiol Self-Assembled Monolayers on Silver
and Gold Surfaces

AU Schoenfish, Mark H.; Pemberton, Jeanne E.

CS Department of Chemistry, University of Arizona, Tucson, AZ, 85721, USA

SO Journal of the American Chemical Society (1998), 120(18), 4502-4513

CODEN: JACSAT; ISSN: 0002-7863

PB American Chemical Society

DT Journal

LA English

CC 66-4 (Surface Chemistry and Colloids)

Section cross-reference(s): 72, 73

AB Surface Raman spectroscopy, electrochem., and XPS were used to study the effects of air exposure on the stability of self-assembled monolayers (SAM) formed from alkanethiols on mech. polished, smooth Ag and Au surfaces. Raman spectra exhibited oxidized S modes after only hours of air exposure. XPS of the S 2p region provided addnl. evidence of S oxidation. Cyclic voltammetry of Ru(NH₃)₆³⁺ indicated that oxidized alkanethiol SAM retain blocking characteristics toward electron transfer, even after exposure of the oxidized SAM-surface to a solubilizing solvent. Control expts. suggested O₃ as the primary oxidant in ambient laboratory air which causes rapid oxidation of the thiolate moiety. Results have important ramifications for the general use of SAM in many proposed applications.

ST alkanethiol self assembled monolayer air stability; silver
surface alkanethiol monolayer air stability; gold surface alkanethiol
monolayer air stability; ozone oxidn alkanethiol monolayer

IT Thiols (organic), properties

RL: PEP (Physical, engineering or chemical process); PRP (Properties);
PROC (Process)

(laboratory air exposure and alkyl chain length effect on stability of
alkanethiol self-assembled monolayers on silver and gold
surfaces in absence of light)

IT Adsorbed monolayers

(self-assembled; laboratory air exposure and alkyl chain length effect on
stability of alkanethiol self-assembled monolayers on silver
and gold surfaces in absence of light)

IT Oxidation

(surface; laboratory air exposure and alkyl chain length effect on stability
of alkanethiol self-assembled monolayers on silver and gold
surfaces in absence of light)

IT 18943-33-4

RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical
process); PROC (Process); USES (Uses)

(laboratory air exposure and alkyl chain length effect on stability of
alkanethiol self-assembled monolayers on silver and gold
surfaces in absence of light)

IT 108-98-5, Thiophenol, properties 1322-36-7, Dodecanethiol

2885-00-9, Octadecanethiol 79869-58-2, Propanethiol
RL: PEP (Physical, engineering or chemical process); PRP (Properties);
PROC (Process)
(laboratory air exposure and alkyl chain length effect on stability of
alkanethiol self-assembled monolayers on silver and gold
surfaces in absence of light)

IT 10028-15-6, Ozone, reactions
RL: OCU (Occurrence, unclassified); RCT (Reactant); OCCU (Occurrence);
RACT (Reactant or reagent)
(oxidant; laboratory air exposure and alkyl chain length effect on stability
of alkanethiol self-assembled monolayers on silver and gold
surfaces in absence of light)

IT 7440-22-4, Silver, properties 7440-57-5, Gold, properties
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(polycryst.; laboratory air exposure and alkyl chain length effect on
stability of alkanethiol self-assembled monolayers on silver
and gold surfaces in absence of light)

RE.CNT 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

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L36 ANSWER 15 OF 26 CAPLUS COPYRIGHT 2009 ACS on STN

AN 1993:8126 CAPLUS

DN 118:8126

OREF 118:1671a,1674a

ED Entered STN: 10 Jan 1993

TI Curable organopolysiloxane compositions for metals and their cured products

IN Kawate, Yasutoshi; Aramata, Mikio; Noguchi, Naoya

PA Shin-Etsu Chemical Industry Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C08L083-06

ICS C08K005-37

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 55, 56

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 04253769	A	19920909	JP 1991-35408	19910205
	JP 2762172	B2	19980604		
PRAI	JP 1991-35408		19910205		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 04253769	ICM	C08L083-06
	ICS	C08K005-37
	IPCI	C08L0083-06 [ICM,5]; C08L0083-00 [ICM,5,C*]; C08K0005-37 [ICS,5]; C08K0005-00 [ICS,5,C*]
	IPCR	C08K0005-37 [I,A]; C08K0005-00 [I,C*]; C08K0005-54 [I,A]; C08K0005-5419 [I,A]; C08L0083-00 [I,C*]; C08L0083-04 [I,A]; C08L0083-06 [I,A]

AB The title compns. which effectively inhibit sulfurization of metals contain organopolysiloxanes whose both terminals are blocked with OH, ≥2 hydrolyzable group-containing organic Si compds. or their hydrolyzates, crosslinking catalysts, and organomercaptans. Thus, OH-terminated dimethylpolysiloxane (20,000 cSt) was mixed with vinyltributanoximesilane, dibutyltin dioctoate, stearyl mercaptan, dimethylpolysiloxane (100 cSt), and silica-based fillers under anhydrous condition, spread on Ag-plated plates, then cured at 20-50% relative humidity for 48 h to give sample specimens, which when left in 1% H2S-containing dry air for 14 days completely inhibit sulfurization of the surfaces of the plates.

ST curable organopolysiloxane compn organomercaptan; silicon compd organopolysiloxane compn curable; mercaptan organopolysiloxane compn curable; sulfurization metal inhibiting organopolysiloxane compn

IT Sulfurization and Sulfidization

(inhibition of, by organopolysiloxane compns. containing organomercaptans)

IT Tarnishing

(prevention of, of silver, silicone coatings for)

IT Coating materials

(tarnish-preventing, silicones, for silver)

IT Siloxanes and Silicones, uses

RL: USES (Uses)

(di-Me, hydroxy-terminated, vinyltributanoximesilane-crosslinked, containing organomercaptans, with sulfurization-inhibiting effects on

metals)
 IT 2224-33-1
 RL: MOA (Modifier or additive use); USES (Uses)
 (crosslinking agents, for hydroxy-terminated dimethylpolysiloxanes)
 IT 4731-77-5, Dibutyltin dioctoate
 RL: CAT (Catalyst use); USES (Uses)
 (crosslinking catalysts, for organopolysiloxane compns.)
 IT 2885-00-9, Stearyl mercaptan 31494-22-1, Oleyl mercaptan
 RL: USES (Uses)
 (organopolysiloxane compns. containing, for inhibition of metal
 sulfurization)
 IT 7704-34-9
 RL: USES (Uses)
 (sulfurization and Sulfidization, inhibition of, by organopolysiloxane
 compns. containing organomercaptans)
 IT 7440-22-4, Silver, uses
 RL: USES (Uses)
 (tarnishing-preventing silicone coatings for)

L36 ANSWER 16 OF 26 CAPLUS COPYRIGHT 2009 ACS on STN
 AN 1992:536001 CAPLUS
 DN 117:136001
 OREF 117:23503a,23506a
 ED Entered STN: 04 Oct 1992
 TI Aqueous emulsion for temporary protection of silver and copper
 surfaces against tarnishing
 IN Grossmann, Hermann
 PA Doduco GmbH und Co. Dr. Eugen Duerrwaechter, Germany
 SO Eur. Pat. Appl., 6 pp.
 CODEN: EPXXDW
 DT Patent
 LA German
 IC ICM C23F011-16
 CC 56-10 (Nonferrous Metals and Alloys)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	EP 492487	A1	19920701	EP 1991-121903	19911220
	EP 492487	B1	19960320		
	R: DE, ES, FR, GB, IT, NL				
	DE 4041596	A1	19920702	DE 1990-4041596	19901222
	ES 2086471	T3	19960701	ES 1991-121903	19911220
PRAI	DE 1990-4041596	A	19901222		
	DE 1991-4124955	A	19910727		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
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EP 492487	ICM	C23F011-16
	IPCI	C23F0011-16 [ICM,5]; C23F0011-10 [ICM,5,C*]
	IPCR	C23F0011-10 [I,C*]; C23F0011-16 [I,A]
	ECLA	C23F011/16B
DE 4041596	IPCI	C23F0011-12 [ICM,5]; C23F0011-16 [ICS,5]; C23F0011-10 [ICS,5,C*]; C09K0015-06 [ICA,5]; C09K0015-12 [ICA,5]; C09K0015-00 [ICA,5,C*]; B01F0017-42 [ICA,5]; B01F0017-38 [ICA,5]
	IPCR	C23F0011-10 [I,C*]; C23F0011-16 [I,A]
	ECLA	C23F011/16B
ES 2086471	IPCI	C23F0011-16 [ICM,6]; C23F0011-10 [ICM,6,C*]
	IPCR	C23F0011-10 [I,C*]; C23F0011-16 [I,A]
	ECLA	C23F011/16B
AB		The emulsion of pH 1-10 (preferably 2-4) comprises a hydrophobic inhibitor of a C _{≥12} thioalc. with ≥1 SH group and its ester 0.05-50

(preferably 2-20), emulsifier 0.05-50 (2-20), and an anionic or nonionic surfactant ≤ 2 (0.05-1 g/L). The emulsifier comprises an alkoxyated and preferably ethoxyated branched C4-20 alc., an alkyl or alkylphenyl ether of polyethylene glycol. Ag, Cu, and their alloys are treated with the emulsion at $>T$ (m.p. of inhibitor), rinsed with H₂O at $<T$, and dried with hot air. An example emulsion of pH 3 and suitable for treatment of Ag and Ag alloys contains octadecanethiol 0.5-30, polyethylene glycol alkyl ether 0.5-30, and SDS ≤ 1 g/L H₂O.

- ST tarnishing inhibitor silver copper; thiol SDS
tarnishing inhibitor silver; SDS thiol
tarnishing inhibitor copper; polyethylene glycol ether
tarnishing inhibitor
- IT Thiols, uses
RL: USES (Uses)
(corrosion inhibitors, for copper and silver, with
emulsifiers of alkyl or alkylphenyl ether of polyethylene glycol)
- IT Tarnishing
(of silver and copper alloys, aqueous emulsion for prevention of)
- IT Corrosion inhibitors
(thiols, with emulsifiers of alkyl or alkyl Ph ether of polyethylene glycol)
- IT Alcohols, compounds
RL: PROC (Process)
(C8-16, ethoxyated, corrosion inhibitor emulsion containing, thiol, for
copper and silver and their alloys)
- IT copper alloy, base
silver alloy, base
RL: RCT (Reactant); RACT (Reactant or reagent)
(tarnishing of, thiol inhibitor for)
- IT 25322-68-3D, Polyethylene glycol, alkyl and alkylphenyl ethers 151-21-3,
uses
RL: PROC (Process)
(corrosion inhibitor emulsion containing, thiol, for copper and
silver and their alloys)
- IT 2885-00-9, Octadecanethiol
RL: PROC (Process)
(corrosion inhibitors, for copper and silver, with
emulsifiers of alkyl or alkylphenyl ether of polyethylene glycol)
- IT 7440-22-4, Silver, reactions 7440-50-8, Copper, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(tarnishing of, thiol inhibitor for)

L36 ANSWER 17 OF 26 CAPLUS COPYRIGHT 2009 ACS on STN

AN 1991:607232 CAPLUS

DN 115:207232

OREF 115:35345a,35348a

ED Entered STN: 15 Nov 1991

TI Surface Raman scattering of self-assembled monolayers formed from
1-alkanethiols: behavior of films at gold and comparison to films at
silver

AU Bryant, Mark A.; Pemberton, Jeanne E.

CS Dep. Chem., Univ. Arizona, Tucson, AZ, 85721, USA

SO Journal of the American Chemical Society (1991), 113(22), 8284-93

CODEN: JACSAT; ISSN: 0002-7863

DT Journal

LA English

CC 22-3 (Physical Organic Chemistry)

AB Surface Raman scattering is used to study self-assembled monolayers formed
from a series of Me(CH₂)_nSH (I; n = 3-5, 7, 8, 11, 17) at mech.
polished and electrochem. roughened Au surfaces. Defect structure
in these films is examined by use of the relative intensities of peaks due

to trans and gauche conformations in the $\nu(\text{C-S})$ and $\nu(\text{C-C})$ frequency regions. Surface selection rules for Raman spectroscopy are used to estimate orientation of the I layers at Au. The orientation proposed on the basis of the Raman spectral data is consistent with those previously reported on the basis of other measurements at Au surfaces. This orientation is compared to that previously determined for these films at Ag, which have a chain tilt from the surface normal less than the 30° previously reported for Au. The C-S bond is perpendicular to the Ag surface, but largely parallel to the surface at Au. Differences in the spectra of short-chain I from smooth and rough surfaces are attributed to disordering of the film at the roughened Au surface, which occurs predominantly near the S end of the mol. on rough Au surfaces.

- ST gold surface Raman selfassembled alkanethiol monolayer; silver surface Raman selfassembled alkanethiol film
- IT Raman spectra
 - (of alkanethiols in self-assembled monolayers at roughened or smooth gold surfaces)
- IT Molecular association
 - Molecular orientation
 - (of alkanethiols on roughened or smooth gold surfaces)
- IT Molecular vibration
 - (of alkanethiols, effect of self-assembled monolayers formed on roughened or smooth gold surfaces on)
- IT Conformation and Conformers
 - (of alkenethiols in self-assembled monolayers on roughened or smooth gold surfaces)
- IT Films
 - (self-assembled monolayer, of alkanethiols on roughened or smooth gold surfaces)
- IT Thiols, properties
 - RL: PRP (Properties)
 - (surface self-assembled monolayers of, on roughened or smooth gold surfaces, Raman spectra in relation to conformation and orientation in)
- IT 7440-57-5P, Gold, preparation
 - RL: PREP (Preparation)
 - (self-assembled monolayers of alkanethiols on)
- IT 109-79-5, Butanethiol 110-66-7, Pentanethiol 111-31-9, Hexanethiol 111-88-6, 1-Octanethiol 112-55-0, 1-Dodecanethiol 1455-21-6, Nonanethiol 2885-00-9, 1-Octadecanethiol
 - RL: PRP (Properties)
 - (self-assembled monolayers of, on gold surfaces, Raman spectra of)
- L36 ANSWER 18 OF 26 CAPLUS COPYRIGHT 2009 ACS on STN
- AN 1991:216967 CAPLUS
- DN 114:216967
- OREF 114:36393a,36396a
- ED Entered STN: 31 May 1991
- TI Surface Raman scattering of self-assembled monolayers formed from 1-alkanethiols at silver [electrodes]
- AU Bryant, Mark A.; Pemberton, Jeanne E.
- CS Dep. Chem., Univ. Arizona, Tucson, AZ, 85721, USA
- SO Journal of the American Chemical Society (1991), 113(10), 3629-37
- CODEN: JACSAT; ISSN: 0002-7863
- DT Journal
- LA English
- CC 73-3 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
- AB Surface Raman scattering is used to study self-assembled monolayers formed from a series of 1-alkanethiols (1-butanethiol, 1-dodecanethiol, 1-octadecanethiol) at both electrochem. roughened and mech. polished polycryst. Ag electrodes. The spectra obtained

at both surfaces are similar in all spectral regions. Defect structure in these films is investigated using the relative amts. of trans and gauche conformers in the $\nu(\text{C-S})$ and $\nu(\text{C-C})$ frequency regions. These monolayer films are most ordered in the cases of 1-butanethiol and 1-octadecanethiol and least ordered in the case of 1-dodecanethiol. This behavior correlates with the ordering observed in the bulk 1-alkanethiols. Surface selection rules are used to determine mol. orientation at Ag.

ST surface Raman alkanethiol silver electrode; thiol alkane surface Raman silver electrode; butanethiol monolayer silver surface Raman; dodecanethiol monolayer silver surface Raman; octadecanethiol monolayer silver surface Raman

IT Surface
(Raman scattering of alkanethiols at silver electrode)

IT Electrodes
(silver, surface Raman scattering of self-assembled monolayers formed from alkanethiols at)

IT Thiols, properties
RL: PRP (Properties)
(surface Raman scattering of self-assembled monolayers formed from, at silver electrodes)

IT Raman spectra
(surface scattering of self-assembled monolayers formed from alkanethiols at silver electrodes)

IT 7440-22-4, Silver, properties
RL: PRP (Properties)
(surface Raman scattering of self-assembled monolayers formed from alkane thiols at electrodes of)

IT 109-79-5, 1-Butanethiol 112-55-0, 1-Dodecanethiol 2885-00-9, 1-Octadecanethiol
RL: PRP (Properties)
(surface Raman scattering of self-assembled monolayers formed from, at silver electrodes)

L36 ANSWER 19 OF 26 CAPLUS COPYRIGHT 2009 ACS on STN

AN 1991:86953 CAPLUS

DN 114:86953

OREF 114:14759a,14762a

ED Entered STN: 09 Mar 1991

TI Protection of silver parts from tarnishing

PA Blasberg-Oberflaechentechnik G.m.b.H., Germany

SO Ger. Offen., 3 pp.

CODEN: GWXXBX

DT Patent

LA German

IC ICM C23C022-03

ICS H01R043-00

ICA H01R013-629

CC 56-6 (Nonferrous Metals and Alloys)

Section cross-reference(s): 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	DE 3905850	A1	19900830	DE 1989-3905850	19890224
PRAI	DE 1989-3905850		19890224		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
-----	-----	-----
DE 3905850	ICM	C23C022-03
	ICS	H01R043-00
	ICA	H01R013-629
	IPCI	C23C0022-03 [ICM,5]; C23C0022-02 [ICM,5,C*];
		H01R0043-00 [ICS,5]; H01R0013-629 [ICA,5]

IPCR C23F0011-10 [I,C*]; C23F0011-16 [I,A]
ECLA C23F011/16B

AB The parts (e.g. elec. contacts) are treated with a solution of a long-chain mercapto compound (stearyl mercaptan, cetyl mercaptan) in C4-5 glycol and/or glycol ether (1-methoxy-2-propanol, Bu glycol, and/or methoxybutanol) with or without subsequent rinsing with solvent, water, or warm aqueous detergent. Successful protection of Ag parts in H₂S atmospheric by treatment with the invention solution was demonstrated.

ST silver protection stearyl mercaptan; cetyl mercaptan
silver protection; hydrogen sulfide silver protection
mercaptan

IT Electric contacts
(silver tarnishing of, in hydrogen sulfide atmospheric,
treatment with cetyl or stearyl mercaptan for prevention of)

IT 7783-06-4, Hydrogen sulfide, uses and miscellaneous
RL: USES (Uses)
(tarnishing by, of silver, in sulfide atmospheric,
treatment with cetyl or stearyl mercaptan for prevention of)

IT 7440-22-4, Silver, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(tarnishing of, in hydrogen sulfide atmospheric, treatment with
cetyl or stearyl mercaptan for prevention of)

IT 2885-00-9, Stearyl mercaptan 2917-26-2, Cetyl mercaptan
RL: USES (Uses)
(treatment with glycol or glycol ether of, of silver, for
tarnishing prevention)

L36 ANSWER 20 OF 26 CAPLUS COPYRIGHT 2009 ACS on STN

AN 1985:118206 CAPLUS

DN 102:118206

OREF 102:18526h,18527a

ED Entered STN: 06 Apr 1985

TI Tarnish inhibitors for gold and silver

PA Alps Electric Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C23F011-16

ICS C23F011-12

CC 56-10 (Nonferrous Metals and Alloys)

Section cross-reference(s): 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 59215490	A	19841205	JP 1983-89183	19830523
	JP 61055596	B	19861128		
PRAI	JP 1983-89183		19830523		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 59215490	ICM	C23F011-16
	ICS	C23F011-12
	IPCI	C23F0011-16 [ICM,3]; C23F0011-12 [ICS,3]; C23F0011-10 [ICS,3,C*]
	IPCR	C23F0011-00 [I,C*]; C23F0011-00 [I,A]; C23F0011-10 [I,C*]; C23F0011-10 [I,A]

AB The inhibitors contain linear alkyl mercaptan, poly(oxyethylene) nonylphenol ether, and iso-Pr alc. The inhibitors prevent discoloration of Au, Ag, or their alloys, and do not increase the elec. resistance. Thus, a phosphor bronze sheet coated with Ag 3μ thick was treated with a tarnish inhibitor composed of

n-hexadecyl mercaptan [2917-26-2] 2 + 10-4,
poly(oxyethylene) nonylphenol ether [9016-45-9] (ethylene oxide 9 mol%)
0.07, iso-Pr alc. 5%, and balance water. The sheet exposed in an atmospheric
at 20° containing H2S 0.05 ppm showed no change in the surface condition,
with decreased discoloration and elec. contact resistance.
ST gold silver tarnishing inhibitor; hexadecyl mercaptan
tarnish inhibitor; tetradecyl mercaptan tarnish
inhibitor; polyoxyethylene nonylphenol ether tarnish inhibitor;
isopropanol tarnish inhibitor silver
IT Tarnishing
(inhibitors, for gold and silver)
IT Corrosion inhibitors
(tarnishing, for gold and silver)
IT 2079-95-0 2917-26-2 9016-45-9
RL: USES (Uses)
(in tarnish inhibitor, for gold and silver)
IT 7440-02-0, uses and miscellaneous
RL: USES (Uses)
(tarnish inhibitor for gold on brass plated with)
IT 12597-71-6, uses and miscellaneous
RL: USES (Uses)
(tarnish inhibitor for gold- or silver-plated)
IT 12767-50-9
RL: USES (Uses)
(tarnish inhibitor for silver-plated)
IT 7440-22-4, uses and miscellaneous
RL: USES (Uses)
(tarnish inhibitors for)
IT 7440-57-5, uses and miscellaneous
RL: USES (Uses)
(tarnishing inhibitors for)

L36 ANSWER 21 OF 26 CAPLUS COPYRIGHT 2009 ACS on STN

AN 1978:157165 CAPLUS

DN 88:157165

OREF 88:24723a,24726a

ED Entered STN: 12 May 1984

TI Prevention of tarnishing on silver or its alloy
products

IN Kawana, Yasuo; Ara, Takeo

PA Alps Electric Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC C23F007-00

CC 56-5 (Nonferrous Metals and Alloys)

Section cross-reference(s): 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	JP 52111430	A	19770919	JP 1976-27793	19760315
	JP 56001396	B	19810113		
PRAI	JP 1976-27793	A	19760315		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
-----	-----	-----
JP 52111430	IC	C23F007-00
	IPCI	C23F0007-00; C23F0011-12; C23F0011-16; C23F0011-10 [C*]
	IPCR	C23C0022-05 [I,C*]; C23C0022-60 [I,A]; C23F0011-00 [I,C*]; C23F0011-00 [I,A]; C23F0011-10 [I,C*];

C23F0011-12 [I,A]; C23F0011-16 [I,A]; H01H0001-00
[I,C*]; H01H0001-00 [I,A]

AB A mixture containing mercapto compound, alkaline compound, alc., and organotin laurate,

e.g., Bu₂Sn dilaurate, is used to prevent tarnish on Ag
, and stabilizes elec. contact resistance. Thus, the mixture contained
lauryl mercaptan [112-55-0] 2.0, cetyl mercaptan [2917-26-2]
0.5, 2-naphthalenethiol [91-60-1] 0.1, benzotriazole [95-14-7] 0.1,
dioctyltin dilaurate [3648-18-8] 1.0, polyoxyethylene alkyl ether 1.0,
polyoxyethylene alkyl ester 1.0, 28% NH₄OH solution 20, EtOH 10, and water
64.3%. The tarnish rating of Ag with the coating was
.apprx.1 after exposing 60 h to a H₂S-NH₃ atmospheric vs. .apprx.10 after
treatment 25 h with a com. mixture

ST silver tarnish preventing mixt; elec contact
silver tarnish prevention

IT Coating materials

(Coating materials for tarnish prevention of silver)

IT Tarnishing

(of silver, coating for prevention of)

IT 91-60-1 95-14-7 112-55-0 2917-26-2 3648-18-8

RL: USES (Uses)

(in tarnish-preventing coating for silver)

IT 7440-22-4, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(tarnishing of, coatings for prevention of)

L36 ANSWER 22 OF 26 CAPLUS COPYRIGHT 2009 ACS on STN

AN 1970:405261 CAPLUS

DN 73:5261

OREF 73:899a,902a

ED Entered STN: 12 May 1984

TI Liquid silver polishing agents

IN Thornton, James C.; Nixon, C. P.; Cox, Bernard C.

PA Goddard, J., and Sons Ltd.

SO Ger. Offen., 13 pp.

CODEN: GWXXBX

DT Patent

LA German

IC C11D007-34

CC 46 (Surface Active Agents and Detergents)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 1932524	A	19700416	DE 1969-1932524	19690626
	GB 1217414	A	19701231	GB 1968-31214	19680629
	BE 734968	A	19691201	BE 1969-734968	19690623
	NL 6909896	A	19691231	NL 1969-9896	19690627
	FR 2011801	A5	19700306	FR 1969-22017	19690630
PRAI	GB 1968-31214	A	19680629		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
DE 1932524	IC	C11D007-34
	IPCI	C11D0007-34; C11D0007-22 [C*]
	IPCR	C11D0007-02 [I,C*]; C11D0007-08 [I,A]; C11D0007-22 [I,C*]; C11D0007-34 [I,A]; C23F0011-10 [I,C*]; C23F0011-16 [I,A]; C23G0001-02 [I,C*]; C23G0001-10 [I,A]
GB 1217414	IPCI	C11D0007-34; C11D0007-22 [C*]
	IPCR	C11D0007-02 [I,C*]; C11D0007-08 [I,A]; C11D0007-22 [I,C*]; C11D0007-34 [I,A]; C23G0001-02 [I,C*]; C23G0001-10 [I,A]

BE 734968 ECLA C23F011/16B; C11D007/08; C11D007/34; C23G001/10
 NL 6909896 IPCI C11D0007-34; C11D0007-22 [C*]
 IPCI C11D0007-34 [ICM]; C11D0007-22 [ICM,C*]; C23G0001-02 [ICS]
 IPCR C11D0007-02 [I,C*]; C11D0007-08 [I,A]; C11D0007-22 [I,C*]; C11D0007-34 [I,A]; C23F0011-10 [I,C*]; C23F0011-16 [I,A]; C23G0001-02 [I,C*]; C23G0001-10 [I,A]
 FR 2011801 ECLA C23F011/16B; C11D007/08; C11D007/34; C23G001/10
 IPCI C23G0001-00 [ICM]
 IPCR C11D0007-02 [I,C*]; C11D0007-08 [I,A]; C11D0007-22 [I,C*]; C11D0007-34 [I,A]; C23F0011-10 [I,C*]; C23F0011-16 [I,A]; C23G0001-02 [I,C*]; C23G0001-10 [I,A]
 ECLA C23F011/16B; C11D007/08; C11D007/34; C23G001/10
 AB Liquid Ag-polishing agents with tarnish
 -resistant activities are described. They contain an acid stronger than H₂S, at least 1% CS(NH₂)₂ or H₂NCSNHNH₂, forming a soluble Ag complex, 0.5-2% SH-containing compound, e.g. n-C₁₆H₃₁SH, n-C₁₈H₃₇SH, or stearyl or cetyl thioglycolate, forming a transparent, colorless protective layer on Ag surfaces, and an emulsifier. Thus, a solution contained H₂NCSNH₂ 4.9%, H₂SO₄ (d. 1.84) 0.81%, HCl (d. 1.16) 0.38%, ethoxylated aliphatic C₁₂-18 amine 0.83%, stearyl mercaptan 0.88%, Solvay Blue PFN 125 0.01%, PrOH 0.011%, rest H₂O. The Ag objects were cleaned by immersion in an Al basket in the above solution with formation of a galvanic cell.
 ST silver polishing tarnishproofing; polishing
 silver tarnishproofing; tarnishproofing silver
 polish
 IT 62-56-6, uses and miscellaneous 2885-00-9
 RL: USES (Uses)
 (polishing materials containing, for silver)
 IT 7440-22-4, uses and miscellaneous
 RL: USES (Uses)
 (polishing materials for, sulfur compound-containing)

L36 ANSWER 23 OF 26 CAPLUS COPYRIGHT 2009 ACS on STN

AN 1969:39127 CAPLUS

DN 70:39127

OREF 70:7349a,7352a

ED Entered STN: 12 May 1984

TI Silver polish containing thio compounds

IN Schlegel, Hans; Straub, Ewald; Bauer, Martin

PA Wuertembergische Metallwarenfabrik

SO Ger., 2 pp.

CODEN: GWXXAW

DT Patent

LA German

IC C23F; C23G

CC 46 (Surface Active Agents and Detergents)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 1282414	B	19681107	DE 1963-W35841	19631218
PRAI	DE 1963-W35841	A	19631218		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
DE 1282414	IC	C23F; C23G
	IPCR	C11D0007-22 [I,C*]; C11D0007-34 [I,A]; C23F0003-00 [I,C*]; C23F0003-04 [I,A]; C23F0011-10 [I,C*]; C23F0011-16 [I,A]

AB Ag articles can be passivated by immersion or spraying with organic solvents containing ≤50% alkyl thioglycolates having 8 C atoms or by polishing with polishers containing 0.5-10% alkyl thioglycolates. The polisher can be prepared from kieselguhr 5, siliceous chalk 3, Me cellulose 1, and n-hexadecyl thioglycolate 1 kg./50 l. distilled H2O.

ST silver polish thio compd; thio compd Ag polish

IT Polishing materials
(alkyl mercaptoacetate-containing, for silver)

IT 7440-22-4, uses and miscellaneous
RL: USES (Uses)
(polishing material for, alkyl mercaptoacetate-containing)

IT 22811-02-5
RL: USES (Uses)
(polishing materials containing, for silver)

L36 ANSWER 24 OF 26 CAPLUS COPYRIGHT 2009 ACS on STN

AN 1967:484494 CAPLUS

DN 67:84494

OREF 67:15951a,15954a

ED Entered STN: 12 May 1984

TI Metal cleaning

IN Kroll, Harry; Therrien, Alderic R., Jr.; Bennett, Phyllis W.

PA Phillip A. Hunt Chemical Corp.

SO U.S., 3 pp.

CODEN: USXXAM

DT Patent

LA English

INCL 106003000

CC 56 (Nonferrous Metals and Alloys)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3330672		19670711	US 1964-378993	19640629

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 3330672	INCL	106003000
	IPCR	C23F0011-10 [I,C*]; C23F0011-10 [I,A]; C23G0001-00 [I,C*]; C23G0001-00 [I,A]
	NCL	106/003.000; 106/008.000; 106/014.130; 106/014.150; 106/014.210; 106/014.420; 106/014.430; 106/014.440; 148/271.000; 252/390.000; 252/395.000

AB Ag and metals chemical similar to Ag are treated with a composition that removes tarnish, cleanses the metal surface, protects the Ag against further tarnish, and imparts a high surface lustre. The active ingredients of the composition are 0.1-10.0 parts of mercapto esters and 0.1-10.0 parts of amine salts. The structure of the mercapto esters is: HS(CH2)nCO2R where n is 1 or 2 and R is alkyl of 12-18 C. The structure of the amine salts is: [R1R2R3N+H]X- where R1 is alkyl of 8-20 C and R2 and R3 are H, Me, and Et, and X is the anion derived from a low mol. weight, aqueous soluble organic acid as acetic, formic, citric, malic, maleic, fumaric, etc. A polishing abrasive may be added to the composition in 0.1-10.0 parts. The active ingredients may be used with a liquid carrier or a finely divided solid abrasive carrier. The liquid carrier may be water, iso-PrOH, or chlorinated hydrocarbon. The abrasive carrier may be pumice, rouge, diatomaceous earth, CaCO3, or any usual polishing abrasive.

ST CLEANING COMPN AG; SILVER CLEANING COMPN

IT Tallow

RL: PRP (Properties)
(amines from, acetates, compns. containing, for tarnish removal
from silver)

IT Tarnish
(removal of, from silver, compns. for)

IT Metals, uses and miscellaneous
RL: USES (Uses)
(tarnish removal from, compns. for)

IT 2190-04-7 3746-39-2 10220-46-9 17369-34-5 17369-37-8
RL: USES (Uses)
(compns. containing, for tarnish removal from silver)

IT 7440-22-4P, uses and miscellaneous
RL: PREP (Preparation); USES (Uses)
(tarnish removal from, compns. for)

L36 ANSWER 25 OF 26 CAPLUS COPYRIGHT 2009 ACS on STN

AN 1967:465804 CAPLUS

DN 67:65804

OREF 67:12443a,12446a

ED Entered STN: 12 May 1984

TI Metal cleaning, polishing or protecting preparations

IN Ford, Ian A. M.; Cox, Bernard C.; Thornton, James C.

PA Goddard, J., and Sons Ltd.

SO Brit., 3 pp.

CODEN: BRXXAA

DT Patent

LA English

IC C23G

CC 46 (Surface Active Agents and Detergents)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	GB 1070383		19670601	GB 1963-25235	19630625
	DE 1519159			DE	
	US 3518098		19700630	US	19640623

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
GB 1070383	IC	C23G
	IPCI	C23G
	IPCR	C09G0001-00 [I,C*]; C09G0001-02 [I,A]; C11D0003-34 [I,C*]; C11D0003-34 [I,A]; C23F0011-10 [I,C*]; C23F0011-16 [I,A]; C23G0001-02 [I,C*]; C23G0001-10 [I,A]
US 3518098	IPCR	C09G0001-00 [I,C*]; C09G0001-02 [I,A]; C11D0003-34 [I,C*]; C11D0003-34 [I,A]; C23F0011-10 [I,C*]; C23F0011-16 [I,A]; C23G0001-02 [I,C*]; C23G0001-10 [I,A]
	NCL	106/003.000; 106/008.000; 106/014.130; 148/271.000; 252/395.000

AB A cleaning, polishing, or protective preparation is provided for metal surfaces containing Ag, Cu, or Ni. The preparation may be a solid, liquid, paste, powder, or semi-solid, or it may be in the form of a surface-treating compound mixed with a protective medium consisting preferably of esters derived from thioglycolic or mercaptopropionic acid and a C12-22 aliphatic alc. Thus a suitable preparation consists of polishing powder 20, detergent paste 40, stearyl mercaptopropionate 2.5, H3PO4 0.2, and H2O up to 100. The paste is prepared by warming the mercaptopropionate with an equal weight of detergent paste and the resulting liquid added to the dry ingredients with stirring to form a stiff paste. Afterward, the liquid content is added slowly while stirring.

ST METAL CLEANER COATING POLISH; NICKEL CLEANER POLISH;
 COPPER CLEANER POLISH; SILVER CLEANER POLISH
 ; CLEANER METAL; POLISH METAL; COATING METAL
 IT Metals, uses and miscellaneous
 RL: USES (Uses)
 (detergents and polishing materials containing octadecyl
 mercaptopropionate or thioglycollate for)
 IT Detergents, preparation
 Polishing materials
 (octadecyl mercaptopropionate or octadecyl thioglycollate-containing, for
 metals)
 IT 7440-02-0, uses and miscellaneous 7440-22-4, uses and miscellaneous
 7440-50-8, uses and miscellaneous
 RL: USES (Uses)
 (detergents and polishing materials containing octadecyl
 mercaptopropionate or thioglycollate for)
 IT 10220-46-9 28986-42-7
 RL: USES (Uses)
 (detergents and polishing materials containing, for metals)

L36 ANSWER 26 OF 26 CAPLUS COPYRIGHT 2009 ACS on STN
 AN 1964:485188 CAPLUS
 DN 61:85188
 OREF 61:14899c-d
 ED Entered STN: 22 Apr 2001
 TI Antitarnish silver polish
 AU Glickman, Charles S.
 SO Manufacturing Chemist (1930-1963) (1964), 35(9), 57,59
 CODEN: MACSAS; ISSN: 0368-8313

DT Journal
 LA Unavailable
 CC 52 (Coatings, Inks, and Related Products)
 AB The use of octadecyl thioglycolate (I) as the main ingredient in the
 formulation of satisfactory antitarnish silver polishes
 is discussed; its alkane portion is H2O-insol. and forms a solid film,
 whereas its SH group is active enough to give a suitable resistance to
 tarnishing. I (25% by weight in iso-PrOH) can be used as a
 concentrate containing diatomaceous earth (mixed with Me cellulose or
 bentonite as a suspending agent), a surfactant, and pine oil.
 IT Polishing materials
 (from octadecyl thioglycolate, Ag antitarnishing)
 IT Tarnishing
 (of silver in Br-KBr solns., prevention of, octadecyl
 thioglycolate polishes for)
 IT Acetic acid, mercapto-, octadecyl ester
 (tarnishing-inhibiting silver polishes
 from)
 IT 10220-46-9
 (Derived from data in the 7th Collective Formula Index (1962-1966))
 IT 7440-22-4, Silver
 (tarnish-inhibiting polishes for, from octadecyl
 thioglycolate)

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